

INTERSTATE MEDICAL JOURNAL.

VOL. XII.

AUGUST, 1905.

No. 8.

ORIGINAL ARTICLES.

DIFFERENTIAL DIAGNOSIS OF ORGANIC HEMIPLEGIA AND HYSTERIC HEMIPLEGIA.*

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Gentlemen:—It would be superfluous to attempt to show from a practical standpoint that it is essential to be able to distinguish organic hemiplegia from that due to hysteria. None of you are ignorant of the fact that these two kinds of hemiplegia have a different prognosis and demand absolutely different treatment; and that a mistake in diagnosis under these circumstances may lead the physician to institute treatment very prejudicial to the welfare of his patient. Furthermore, it is not necessary to go into a long dissertation in order to prove that in many cases the differential diagnosis is difficult and even impossible, if, in order to form an opinion, one has at his disposal the classic differential signs; it has happened to every physician to see cases of this kind.

The characteristics which serve to distinguish the organic hemiplegia from hysteric hemiplegia may be divided into two categories: on the one hand, the intrinsic characteristics related to the anomalies of motility which occupy one side of the body; on the other hand the extrinsic characteristics which are related to the presence or absence of certain phenomena which are independent of the latter, to the circumstances in which the paralysis began, and to the nature of the soil upon which it developed.

The latter characteristics are those to which generally the greatest importance is attached. For example, here is an adult individual, never having manifested hysteria, stricken without immediate apparent cause with hemiplegia; he would be considered without further examination as suffering with organic hemiplegia by the majority of physicians. In general, a similar diagnosis would be made even in a young person attacked by hemiplegia, if the patient did not present the stigmata of hysteria, if he were syphilitic, or if he presented the signs of a cardiac affection, especially those of mitral stenosis; on the other

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†A lecture delivered at l'hôpital de la Pitié.

hand, let the young person be neither syphilitic nor subject to heart disease, and present the stigmata of hysteria—hemianæsthesia, sensori-sensorial—if he declares that the hemiplegia followed a lively emotion, there would be scarcely any hesitation in regarding the paralysis as due to hysteria.

Certainly I have no idea to take all the value from the extrinsic characteristics mentioned, and I am quite willing to admit that they may justify entertaining a very likely presumption, but it is my opinion that in no case are they capable of being made the basis of certainty, and I shall try, by analyzing them in succession, to prove to you the correctness of this opinion.

The role of emotion in the genesis of hysteric accidents is certainly very well established, but we should not on that account conclude that every case of hemiplegia attributed by the patient to mental shock is hysteric. Do we not know, in the first place, how frequently patients are inclined to attribute to this factor the disturbances to which they are subject? And we should guard against accepting without sufficient examination any declarations of this kind. Besides, and it is a point upon which I cannot insist too much, it is an incontestible fact that psychic shock may cause an organic lesion of the brain in an individual whose heart and cerebral arteries have been altered by disease; lack of appreciation of this fact has often caused errors in diagnosis. Recently I saw an instance of this kind, which my interne, Dr. Cestan, reported to the Anatomical Society.¹

It is well known that organic hemiplegia is more frequent in the advanced period of life than in youth, and that the contrary holds true of hysteric hemiplegia. However, this is but a rule and subject to many exceptions.

Heart disease, more especially stenosis, cerebral arteritis, and more especially syphilitic arteritis, are, it is true, the most common causes of focal lesions of the brain; but it should not be forgotten that a man may have an arterial lesion of the brain without presenting objective signs of it, and that consequently the absence of such signs does not permit the hypothesis of cerebral softening or hemorrhage to be cast aside; that on the other hand, as simple common sense teaches, an organic affection of the circulatory apparatus does not immunize against hysteria; a person though organically diseased, is still capable, like another, of being affected with hysteric hemiplegia.

Similar considerations are applicable to the presence or absence of hysteric stigmata, since these may be absolutely wanting in hysteric paralysis and hysteria does not preclude the presence of organic affections. We have only to recall that the association of hysteric and organic maladies is very frequent;² that, for example, hysteric hemianesthesia easily develops in a person suffering with organic

hemiplegia. Thus, from the point of view of differential diagnosis, the insufficiency of the preceding characteristics is evident.

There are some other extrinsic characteristics which have a greater value. These are fever, fecal incontinence, acute decubitus occurring on the paralyzed side. Certainly the presence of such anomalies, particularly the last two, almost permit the affirmation that the hemiplegia depends upon an organic affection, but they are either transitory or they occur in grave cases rapidly terminating in death. Therefore, the physician observes them but rarely, and thus their presence is not often an aid in diagnosis.

From what has been said the inadequacy of extrinsic characteristics for differential diagnosis of these two kinds of hemiplegia is evident.

For a long time convinced of this fact, I have studied the intrinsic characteristics; I have tried to appreciate exactly the importance of those that had already been established, and in the course of my examinations I was led to observe certain new ones whose value I endeavored to establish; and I now believe myself authorized to maintain that in the great majority of cases the intrinsic characteristics offer decisive elements of differential diagnosis. The purpose of this lecture is to describe the intrinsic characteristics which appear to me to be the basis upon which must rest the differential diagnosis of these two kinds of hemiplegia.

Theoretically, at once we may foresee the various ways in which motility may be disturbed in hemiplegia, if we remember the various modes of normal muscular activity, muscular tonicity, voluntary contractility, and reflex contractility.

Tonicity maintains the various portions of the body in a fixed attitude of relation one to another, and it is easy to conceive that its enfeeblement or exaggeration brings about certain deformities.

When we analyze voluntary contractility in any more or less complicated movement, it is apparent that it is the result of two kinds of movements; some are conscious, others are unconscious or sub-conscious. Take, for example, the act (of which I shall have more to say later) of rising to the sitting posture from the horizontal position on the back. In this movement, flexion of the pelvis on the thighs and of the trunk on the pelvis constitutes the principal and conscious act; but for its normal accomplishment previous extension of the thighs on the pelvis is needed, a movement which is automatically executed and of which one is but little or not at all conscious. It may be supposed that in paralysis these two kinds of movements might be disturbed.

Finally, reflex contractions, which may be excited by tapping the tendons or irritating the cutaneous surface, as is immediately suggested, may in a paralyzed patient present two kinds of modifications; one depending upon the tendon reflexes, the other upon the cutaneous reflexes.

This theoretically considered, let us pass to the examination of the facts.

Let us begin with facial paralysis. I have no intention to present here a complete study of this syndrome; I shall limit myself to correcting certain classic dogmas which, in my opinion, are inexact, and I shall try to make clear the characteristics which enable us to distinguish the two kinds of facial involvement in the hemiplegias we have under consideration.

First, let us examine the facial paralysis that occurs in organic hemiplegia.

During the period of flaccidity in repose the face presents the following appearance: On the paralyzed side the labial commissure is lowered, the naso-labial line is erased, and during expiration the cheek is blown outward; when the domain of the superior facial is involved, which is not rare, especially in the beginning, before there has been any amelioration of the paralysis, the wrinkles of the brow are erased and the eyebrow is lowered. It is easy to demonstrate that these disturbances are due to enfeeblement of the normal muscle-tone; it is only necessary to take the lips and the cheek between our fingers and make passive movements in order to convince ourselves of the muscular relaxation.

In classic treatises the facial asynergy in repose and during the period of contracture is said to be the opposite of that which has just been described; on the paralyzed side the naso-labial line, after having been erased, is said to become more marked, and the labial commissure, after having been lowered, is said to be raised above the level of that of the healthy side. This description is true of a certain number of hemiplegics, but not of all—far from it. It is not infrequent in patients that have suffered with hemiplegia for several years, and whose limbs are in a state of contracture, to note a lowering of the commissure on the paralyzed side like that characteristic of the period of flaccidity.

The unilateral movements of the face are less readily executed on the side of the hemiplegia than on the normal side, as might naturally be expected. The same is true of bilateral movements, whether the hemiplegia be in the stage of flaccidity or in that of contracture. The predominating action of the muscles of the face on the sound side is especially apparent when the patient speaks; then it is immediately noted that the muscles of the lips functionate much more actively on this side; I have never seen the opposite condition. In the act of laughing we also note frequently that the labial commissure is raised, and that the naso-labial fold is accentuated on the normal side even in hemiplegics in whom, on the paralyzed side, in the state of repose, the labial commissure stands at a higher level than its fellow, and the naso-labial fold is more marked. I must add, however, that this is not always the case, and that sometimes smiling only accentuates the asymmetry due to contracture.

When the tongue is protruded from the mouth, ordinarily it deviates slightly toward the paralyzed side.

I wish now to draw your attention to these points: First, that the facial paralysis is limited to the hemiplegic side; and next, to the parallelism that exists between the various disturbances of voluntary motion. If, for example, the unilateral movements are very weak, the loss of power will also appear very clearly on the hemiplegic side when various bilateral synergic movements are executed. It is not necessary to add that this parallelism is not mathematical, since any one of the various disturbances may be more marked than the others.

I should also say that this paralysis is subject to rules, if not to laws; that is, contracture follows flaccid paralysis, and the disturbances of motion grow less and less marked, depending, of course, upon the patient, but always in a progressive manner; and they are not subject to alterations of increase and decrease.

I scarcely need add that in certain cases of hemiplegia the face is but slightly involved, and may appear to be absolutely normal.

As for the disturbances of motion which hysteria may engender in the domain of the muscles of the face, they are only phenomena of a spasmodic nature, the reality of which has been long and incontestably established.

Charcot gave a masterly description of glosso-labial hemispasm,³ and all observations since made have only served to confirm its accuracy.⁴

The existence of flaccid paralysis in hysteria was for a long time held to be doubtful, and Charcot, having energetically denied the possibility of it, finished by admitting that it might occur after the articles by Ballet⁵ and Chantemesse.⁶ Koenig has published an interesting work on this subject,⁷ and I have reported in two communications to the Medical Society⁸ certain facts which tend to show that hysteric facial paralysis has a clinical aspect quite distinctive which makes it possible to distinguish it from that which occurs as a part of organic hemiplegia.

In this species of facial paralysis (hysteric) we may see the lowering of the commissure like that seen in organic paralysis, but in contrast with what we see in organic paralysis, when the lip or cheek is seized by the fingers and passive movements are made, we note the absence of muscular relaxation and see that the lowering of the commissure is only apparent and due to raising of the opposite commissure spasmodically; or that it is the result of the contraction of the muscular fibres which lower the lip, and that, far from being the consequence of muscular flaccidity, it is a manifestation of muscular action. In hysteric facial paralysis we never observe lowering of the eyebrow or erasure of the lines of the brow, which occur in organic paralysis, dependent upon diminution or abolition of muscular tone. The absence of any disturbance of this mode of muscular activity gives to hysteric facial paralysis, as to hysteric paralyzes in general, no matter what their location, a special

feature. This, at least, is the opinion I have expressed and which I maintain.

The tongue is sometimes deflected toward the side of the facial paralysis, and it may be but slightly, as in organic paralysis; but, contrary to what is observed in the latter, the deviation may be very pronounced, and under such circumstances it is very easy to show that the condition is one of spasm of the tongue. It may be in some cases that the deviation is toward the sound side.

The anomalies in hysteric paralysis are but rarely limited rigorously to one side of the face, as in organic paralysis.

In contrast with organic paralysis, hysteric facial paralysis is ordinarily a systematic palsy; that is, it affects one or several systems of voluntary movements which the muscles of the face execute. In one patient, for example, the two sides of the face functionate about equally in the act of speaking or whistling, while the unilateral movements are abolished on one side, and on this side the movement of elevation of the labial commissure is quite impossible.

Finally, the evolution of hysteric facial paralysis is capricious and not subject to rules like those which govern the development of organic paralysis. The spasmodic manifestations do not necessarily follow the paralytic phenomena; they may precede them and in many cases the two are associated. Moreover, the symptoms may be improved or become aggravated from time to time, and they may be noticeably modified in their intensity and their form, not only from day to day, but from one moment to another.

After this comparative study of these two varieties of facial paralysis, I wish to call your attention to a disturbance in the domain of the platysma myoides muscle which I described in a communication made to the Medical Society.⁹ I observed this disturbance in organic hemiplegia, and it consists of this, that in certain cases in which this muscle is called into play its contraction is more energetic on the sound side than on the paralyzed side. This phenomenon is especially noticeable when the patient forcibly opens the mouth (*vide* Fig. 1), and when the head is bent forward in opposition to a movement of extension which the examiner makes; also when the patient whistles, blows or makes movements of swallowing. I hasten to add that not all hemiplegies present this sign. I have called this phenomenon *associated spasm of the platysma*, which, after reflection, seems to me to be erroneous; in fact, I believe there is no spasm on the normal side, but rather paralysis of the platysma on the affected side, which becomes apparent in the synergic movements of the two muscles and which manifests itself in predominance of the action of the muscle on the normal side. I propose to call this simply the *sign of the platysma*. It may also be present in peripheral facial paralysis, this muscle being in part innervated by the facial nerve. I have seen two patients affected with organic hemiplegia in whom the

fibres of the platysma were more apparent on the paralyzed side than on the sound side when the mouth was opened. Probably in these cases there was a real spasm; and, besides, in the same patients there existed on the side of the hemiplegia, lowering of the commissure which was manifestly of spasmodic origin. These cases seem to me to be exceptional.

In patients suffering with pure hysteric hemiplegia that I have examined with reference to this point, I have never observed this sign; how-

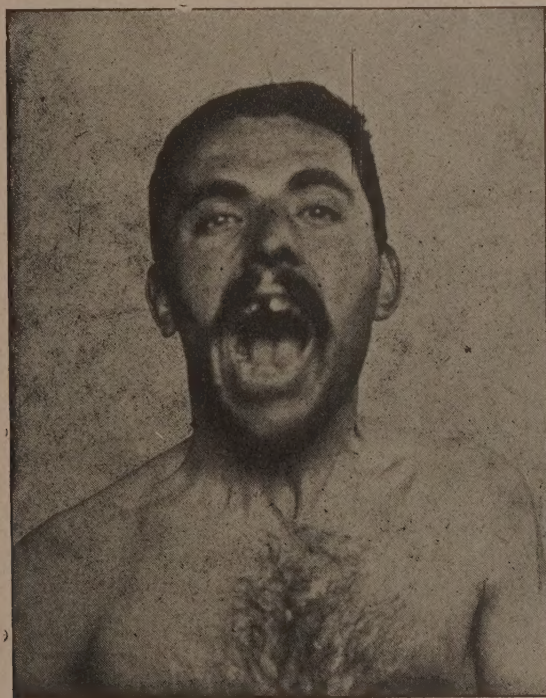


FIG. 1.—Left organic hemiplegia of one year's duration. Contraction of right platysma. Courtesy "Gazette des Hopitaux."

ever, since it is possible to voluntarily contract the platysma on one side, I can conceive that it might be found in hysteria, or, rather, simulated in hysteria. In any event, it seems to be very much rarer in hysteric hemiplegia than in organic hemiplegia, and without wishing to attach fundamental importance to it I think that when the sign of the platysma exists distinctly on the sound side in a case of hemiplegia, it is an index of organic lesion.

Let us pass on to the study of the disturbances of motility observed in the limbs and trunk which may help us to the end we seek.

I have already remarked that the lowering of the labial commissure and the erasure of the lines of the brow in the facial paralysis of organic hemiplegia were due to lowering of muscular tonicity. This anomaly in organic hemiplegia is not limited to the muscles of the face; it is simply more apparent there than elsewhere, because it brings about

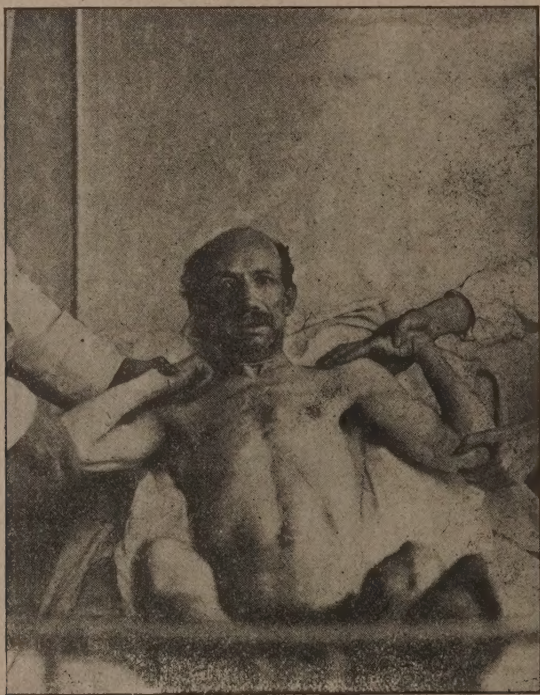


FIG. 2.—Right organic hemiplegia on its fifth day; exaggerated flexion of the right forearm.
Courtesy "Gazette des Hopitaux."

facial asymmetry which at once attracts attention; but as I have elsewhere shown, it may likewise implicate the limbs.¹⁰

It shows itself in lowering of the shoulder, as well as in foot-drop and wrist-drop; when the legs are hanging down, the angle that the foot forms with the leg is greater on the paralyzed side; when the forearm is maintained in a horizontal position and in pronation, flexion of the hand at the wrist is more accentuated on the same side. Lowering of the tonicity of the muscles of the superior extremity may also be shown by the following manœuvre: when, with the forearm in supination, it is

passively flexed on the arm and strong effort is made to bring the two segments of the member close together, as close as possible without causing pain, and using the same amount of force on each side, it will be noted on comparing the two sides that the degree of flexion is much greater on the paralyzed side (*vide* Fig. 2). This phenomena may be called *exaggerated flexion of the forearm*. I should remark that even in normal persons there may be found a slight difference between the two sides; usually in such cases the degree of flexion is more apparent on the weaker side—the left. This phenomenon, then, has value only if it is very decided; and it has greater significance in right hemiplegia than in left hemiplegia. It is usually observed in cases of recent flaccid hemiplegia without exaggeration or with enfeeblement of the tendon reflexes; but I have observed it also, and this may seem surprising, in some cases of old hemiplegia with exaggeration of the tendon reflexes.¹¹

Never having seen this sign in hysteric hemiplegia, I regard it as a help in differentiating the two kinds of hemiplegia with which we are concerned. I must add that exaggerated flexion of the forearm has significance only if the paralyzed member is free from amyotrophy; for the degree of flexion is always more marked on the side of the atrophied member, even when the atrophy depends upon an hysteric paralysis.

I now call your attention to a differential sign of these two varieties of hemiplegia, which I described two years ago, and to which I attach great value. It is found in the majority of patients affected with organic hemiplegia when the patient lies horizontally on a hard surface like the floor, with the arms crossed on the chest, and then makes an effort to rise to a sitting position. The thigh on the paralyzed side executes a movement of flexion on the pelvis and the heel leaves the floor slightly. On the opposite side the limb remains immobile or the flexion of the thigh and the elevation of the heel occur later and are very much less marked than on the side affected with paralysis (*vide* Fig. 3), at the same time the shoulder on the normal side is carried forward.

The movement I have described occurs, and may be even more accentuated when the patient, after having come to a sitting posture, always maintaining the arms crossed on the chest, allows the body to fall backward to a horizontal position¹². The movement is especially pronounced if the patient lie back suddenly. What is the mechanism of this movement?

In order to understand the interpretation of the movement which I propose, it is necessary first to analyze the act of rising to a sitting position. The essential movement of this act is conscious. It is forward inclination of the pelvis and vertebral column, and this inclination can only take place normally when the thighs have been previously immobilized. In fact, when we consider the mode of action of the psoas, which, in accordance with whether it takes its fixed point at its superior or inferior insertion, flexes the thigh on the pelvis or brings forward

the pelvis and the vertebral column, we can understand that, with absence of extension of the thigh, the act we are considering must cause forward inclination of the body with flexion of the thigh on the pelvis. This extension of the thigh is brought about by conscious or sub-conscious activity of the muscles which extend the thigh on the pelvis. I assume that it is the weakness of the latter which causes the phenomenon in question. Moreover, the reality of this paresis is incontestible; for, when the patient, lying on his back, tries to maintain the lower extremities fixed against the floor as forcibly as possible, it is much easier to lift up (passively) the leg on the paralyzed side.

This phenomenon, which I have called the *associated movement of flexion of the thigh*, depending, if my interpretation be correct, upon a mechan-

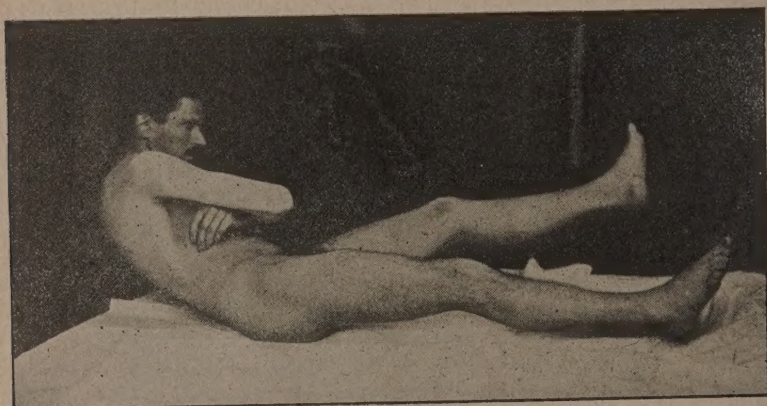


FIG. 3.—Left organic hemiplegia, one year old; combined flexion of the thigh and trunk on the left side. Courtesy "Gazette des Hopitaux."

ism very different from that which is in play in the various varieties of associated movements in h miplegia, might be preferably called *combined flexion of the thigh and trunk*, which describes the movement simply and with precision.

It is easy to understand why the movement of flexion of the thigh is also induced when the patient, after having reached a sitting posture, tries to resume the original reclining position. In fact, it would be wrong to conclude that in this act the patient limits contraction to the muscles which incline the body backwards. If this were true the upper part of the body carried down by force of weight would forcibly fall against the floor. The extension of the body must be moderated by the contraction of the flexors which diminishes progressively, and this contraction of the flexors in order to be efficient necessitates previous fixation of the thighs. The conditions, therefore, are alike in both cases.

Another consideration, which inclines me to believe that this interpretation is correct, is that I have observed the movement of combined flexion of the thigh in several cases of sciatica, in which the extensor muscles of the thigh on the pelvis were atrophied. But no matter whether my explanation of the mechanism of this phenomenon is exact or not, its reality is incontestible, and that is the essential point.

I should call your attention to the fact that normally fixation of the thigh varies to some extent with the individual, and this, no doubt, is one reason why all persons do not rise to a sitting posture with the same facility; while some in the act maintain the thighs against the floor, others raise them more or less in a movement of flexion on the pelvis; but in normal persons when the thighs are fixed under such circumstances the movement is approximately equal on both sides. Nevertheless, since without hemiplegia there may be a slight difference between the two sides, the movement of combined flexion of the thighs and trunk can be considered as pathologic only when absent on one side, it is marked on the other, or when, if it occur on both sides, it is decidedly more marked on one side than on the other.

The movement of combined flexion of the thigh and trunk naturally implies that the limbs are capable of a certain amount of movement; thus, theoretically, it should be absent when paralysis is complete, and observation confirms this. In fact, generally it is only some time after the beginning of hemiplegia, when the paralysis is somewhat attenuated, that the phenomenon appears. In the earliest phase of hemiplegia, since the lack of power on the paralyzed side is complete, either the patient is so prostrated that he is not capable of the least effort, or when he tries to assume a sitting posture he makes a movement of rotation around the long axis of the body toward the paralyzed side; this movement seems to me to be the result of the limited action on one side of the body of the muscles which incline the trunk forward.

In hysteric hemiplegia the phenomenon which I have just described does not occur. When the hysteric patient is made to lie on the back and is told to rise to a sitting posture, either he remains motionless or declares that he cannot do what is asked, or he rises to a sitting posture like a normal individual; or, finally, he may make movements of the trunk and limbs which are very different from the movement of *combined flexion of the thigh and trunk*.

The condition of the tendon and bone reflexes furnish evidence of the greatest importance for the solution of the problem we have in hand; at least this is my belief, but concerning this there are differences of opinion among neurologists.

As far as organic hemiplegia is concerned all agree in admitting that in the beginning the tendon reflexes on the paralyzed side may be normal, exaggerated, enfeebled or abolished, while in the second period, that is to say, after the fourth or fifth week, the reflexes are almost

always exaggerated, except when there is a concomitant lesion of the posterior spinal roots. We also note in many patients foot-clonus, and sometimes hand-clonus.

This is not true of hysteric hemiplegia; many physicians think that if exaggeration of the reflexes on the paralyzed side is rarer in this affection than in organic hemiplegia, nevertheless it may be found; and the same is true of enfeeblement or abolition of the reflexes, and that therefore the anomalies of the reflexes cannot be regarded as a differential characteristic of great value.

In an article published seven years ago¹³ I expressed a contrary opinion, and the experience I have since had has only strengthened me in this view. I think that hysteric paralyses in general, and hysteric hemiplegia in particular, exert no influence on the tendon reflexes.

I must add that appreciation of the condition of the tendon reflexes is not so easy that it does not present difficulties, the principal one of which is that their manifestation may be distorted by psychic influence; in fact, the movement of one segment of a limb resulting from percussion of the tendon, and which gives an apparent measure of the intensity of the reflexes may be, by a motor act of psychic origin attenuated or exaggerated, depending upon whether the effects of these two phenomena are opposed or act together.

In order to eliminate the influence of the second factor, when we examine the knee-jerks the patient is told to close the eyes, to relax the muscles of the lower extremities; and in order to attain this end more readily, to contract forcibly the muscles of the upper extremities. In spite of these precautions we do not always easily obtain the desired result, and it may be necessary to repeat the examination several times in order to be certain of the condition of the reflexes.

The difficulties are still greater in hysteric persons, as will be readily understood, and if careful attention is not given, mistakes are apt to occur. Percussion of the tendons of an hysteric person may be followed on both or on one side only by an energetic jerk, and this gives rise to the impression that the reflexes are exaggerated. When the foot is forced upward sometimes there is a trepidation of it, which in some cases is propagated to the whole limb, and resembles foot-clonus. But if we look closely, if we carefully analyze this phenomenon, we usually are able to recognize its true value. At least it is my opinion that this exaggeration of reflexes is only apparent; that the movement observed is composed of two elements, which represent the effects of two very different acts: on the one hand, a movement having an amplitude equal to and a form identical with that of the normal reflex (actual tendon reflex); on the other hand, a movement much more extensive and of psychic origin (pseudo-tendon reflex). Usually a simple glance serves to distinguish these two phenomena; thus one may affirm in certain cases that the movement following percussion of a tendon is not due to

a true tendon reflex, because the time elapsing between percussion and reaction is too long; or because of the manner in which the muscles contract; or the nature of the movement does not present the features which characterize the true tendon reflex; or because a similar movement may be induced by percussing a point near a tendon; or, finally, because the condition of the reflex undergoes certain noticeable modifications at short intervals. Similarly with reference to foot-clonus, it may be seen that the phenomenon is not a veritable trepidation of the foot, but an imitation of this phenomenon quite different from true foot-clonus.

I wish especially to call your attention to the radial reflex, which is brought out by percussing the radius at its lower extremity, and which, though rarely investigated, should be examined as often as any other, and even more frequently, because, when it is really exaggerated, this exaggeration is manifest in a movement of such intensity, and especially of such quickness, that it is difficult to imitate it.

Thus abolition or the exaggeration of the tendon reflex, as on the paralyzed side in hemiplegia, affords an important index to organic lesion of the nervous system, and suffices to cause the rejection of any idea of hysteric paralysis. Indeed, it would be almost a decisive differential characteristic if hysteric hemiplegia were always manifest in a pure state. But this is not the case, and we sometimes encounter difficulties in diagnosis which depend upon the fact that hysteric paralysis or contracture may be associated with an organic paralysis; or hysteric paralysis may develop in a limb in which the tendon reflexes are exaggerated as a result of some other concomitant affection. For example, here is a person presenting a lesion of the ankle joint which has caused exaggeration of the tendon reflex with foot-clonus; this lesion has also induced hysteric contracture of the lower limb; a superficial observer might consider that exaggeration of the reflex depended upon hysteria.

I should add, however, that I have seen in one case of crural hysteric contracture, which seemed to be pure, trepidation of the foot which seemed to me to be identical with true foot-clonus. I am inclined to believe that this phenomenon was the result of irritation of the fibro-tendonous tissues about the joint itself, due to the vicious attitude of the foot which had existed for several months, and that in reality the foot-clonus was but indirectly due to the hysteric contracture. At all events, absence of the foot-clonus in hysteric hemiplegia might be considered, if not a law, at least a rule which is subject to but few exceptions.

While the tendon reflexes have for a long time been carefully examined by neurologists in systematic investigation of the affections of the nervous system, the study of the cutaneous reflexes has been neglected. It is simply considered that in organic hemiplegia these reflexes are sometimes enfeebled or abolished on the paralyzed side, but in classic

treatises the question whether disturbance of them might serve to differentiate the two kinds of hemiplegia is not discussed.

I should say, however, as far as the cutaneous abdominal reflex is concerned, that Rosenbach,¹¹ who was the first to call attention to the loss of this reflex in organic hemiplegia, is of the opinion that this loss does not occur in hysteric hemiplegia. My own observation seems to justify Rosenbach's opinion. I do not believe that hysteria can, like an organic affection of the brain, abolish the cutaneous abdominal reflex, and in the majority of cases of hysteria that I have examined I have seen a reflex movement follow excitation of the skin of the abdomen. Nevertheless, in some hysteric persons presenting hemianesthesia I have not been able to excite any movement. In such a case, I do not think that we have to do with the true abolition of the reflex, and I assume that the reflex movement is simply masked by voluntary contraction of the muscles of the abdominal wall.

At all events, absence of movement of the abdominal wall after excitation of the skin of the abdomen in a case of hemiplegia should be considered as an uncertain indication of organic lesion.

Abolition of the cremasteric reflex on the paralyzed side, coinciding with the presence of the reflex on the normal side, is not rare in organic hemiplegia, and it seems to me to have more value for diagnosis than abolition of the abdominal reflex.

The movements which follow excitation of the sole of the foot in many cases of organic hemiplegia are feebler on the paralyzed side than on the sound side. But this may be true in hysteric hemiplegia, and what I have said concerning the abdominal reflex is also applicable to the plantar reflex. Still the cutaneous plantar reflex affords for differential diagnosis indications of the greatest importance, if, instead of being content, as observers have been up to the present time, to simply note the degree of its intensity, the form of the movement is taken into consideration.

A few years ago I demonstrated that in the normal state in the adult excitation of the sole of the foot induces, among other reflex movements, flexion of the toes and metatarsal bones, and never extension of them; on the other hand, when there is disturbance in the pyramidal tracts, excitation of the sole of the foot usually causes extension of the toes, and in particular of the great toe. This pathologic modification of the form of the reflex movement I have called the toe-phenomenon, and I gave a detailed description of it in a lecture published in the *Semaine Medicale*¹⁵, to which I beg to refer you. In organic hemiplegia, depending upon a lesion involving the pyramidal tracts, this sign is observed on the paralyzed side; it is to be found in the majority of cases of hemiplegia, and it is ordinarily more marked in recent hemiplegia than in old hemiplegia. I have also seen this sign in patients afflicted simulta-

neously with old hemiplegia and tabes, whose tendon reflexes were abolished.

In hysteric paralyses I have never seen the toe-phenomenon, and I think that if its absence does not permit us to put aside the hypothesis



FIG. 4.—Left organic hemiplegia of one year's duration. Right foot in repose. Courtesy "Gazette des Hopitaux."



FIG. 5.—The right foot of same patient when irritated by a needle. Courtesy "Gazette des Hopitaux."

of an organic affection of the central nervous system, its presence justifies us in affirming the existence of such an organic affection.

Its semeiologic value is also especially great in cases in which the tendon reflexes do not enable us to determine the condition of the pyramidal

tracts. In recent organic hemiplegia the tendon reflexes are generally normal or weakened, and all agree that it is almost impossible to distinguish, during the first period, hysteric hemiplegia from organic hemiplegia. In all cases of this kind the existence of the toe-phenomenon is particularly valuable, for it permits us to affirm that the paralysis is organic.

The result of my researches has been confirmed by many writers, and particularly by von Gehuchten¹⁶, Glorieux¹⁷, Ganault¹⁸, Letienne and Mircouche¹⁹, Collier²⁰, Buzzard²¹, Kalischer²², Boeri²³, Acchitte²⁴, Koenig²⁵, Cestan et L. Le Sourd²⁶, Zlotoroff²⁷, Langdon²⁸, Chaddock²⁹. However, M. Schueler³⁰, while recognizing the sign as an index of organic lesion, does not consider it as absolutely characteristic. Martin Cohn³¹ and Guidicandra³² are the only ones who are in complete discord with me; but it seems clear to me that they, in their investigations, have committed some errors of technique against which I gave warning.

The contractures of organic hemiplegia have a distinctive appearance different from those present in hysteric hemiplegia, and thus afford elements for diagnosis. The contracture of organic hemiplegia usually causes a special gait, which was described in a masterly manner by Todd. The patient inclines the trunk toward the side opposite the paralysis, and makes a movement of circumduction with the paralyzed limb—he mows. Nothing like this is seen in hysteric hemiplegia. I shall say nothing more on this subject because it is so well known.

I wish, on the contrary, to insist upon the position of the hand and fingers, particularly the grip observed in many cases of organic hemiplegia, due to the contracture. When the contracture is intense and the flexion of the fingers is very pronounced, we are able to make some movement of the fingers and slip our hand under the fingers and into the palm of the patient. If, after having done this, an effort is made to extend the patient's fingers, we feel a resistance which gives the impression of elasticity and a slight degree of trepidation; besides, as the hand is moved into extension on the forearm the phalanges flex on each other and the metacarpals, and thus press the hand of the observer. There results from this characteristic impression a sensation observed clearly in examining the majority of patients suffering with spasmodic organic hemiplegia, if the paralysis be sufficiently marked. I have never observed this sign in hysteric hemiplegia with contracture, and I regard it as a sign absolutely characteristic. I described the sign for the first time in my work I have already mentioned on organic and hysteric contractures. I would add that hysteric contracture of the upper extremity is ordinarily more pronounced; the ends of the fingers are in contact with the palm. In order to give an idea of the form of hysteric contracture, I will say that voluntary contraction of the muscles may reproduce it perfectly, while organic contracture can be but very imperfectly imitated.

Finally, paralysis of the limbs, like paralysis of the face, presents distinctive characteristics in its mode of evolution. In ordinary organic hemiplegia the progress of the malady is regular, contracture follows flaccidity, the improvement and progress of the paralysis itself is not



FIG. 6.—Patient of figure 4 and figure 5, left foot in repose. Courtesy "Gazette des Hopitaux."



FIG. 7.—The same foot as in figure 6 when irritated with a needle; the toe phenomenon. Courtesy "Gazette des Hopitaux."

subject to alterations of improvement and aggravation. Ordinarily in hysteric hemiplegia the contrary takes place; its evolution is capricious; the paralysis may remain limp indefinitely, just as it may be spasmodic from the beginning; it is often subject to transitory remissions, which last a few minutes and which facilitate diagnosis.

Here, for example, are two patients, the one suffering with organic hemiplegia and the other with hysteric hemiplegia, and both appear to be unable to execute any movement with the arm. Let us take the paralyzed arm, raise it and then immediately leave it without support, repeating this experiment several times while talking to the patient in order to distract attention from what we are doing. You will note that in the first case the paralyzed arm falls back like an inert body the moment it is no longer sustained; and the same result is observed every time we try the experiment. In the hysteric patient you will note generally the same fact in the majority of experiments you make, but it may happen that once in a while when the arm is raised it remains in the attitude a longer or shorter time after you have removed the support. This characteristic, which is always wanting in organic hemiplegia, is of the greatest importance in diagnosis.

You may also examine for this characteristic in another way. Support with your arm the paralyzed limb, raising it to a certain height; an inert limb in obedience to the law of gravitation would give an impression of weight and call for a certain static effort which would be constant if the patient were suffering with organic hemiplegia; but had you to do with an hysteric patient, this impression would change in character and might quite disappear for a short time.

You see from what has been said that the disturbances of motility in hysteric hemiplegia are notably different from those which belong to organic hemiplegia.

You have also noted that hysteric hemiplegia is distinguished much less by the presence of certain special signs than by the absence of certain objective characteristics which mark organic hemiplegia.

In order to understand why these characteristics are wanting in hysteric hemiplegia it is necessary at once to try to understand the mechanism of hysteric paralysis.

Certain observers admit that the influence which produces the phenomena of hysteria may be localized in various regions of the cerebral cortex especially in the motor centers, and thus determine manifestation, analogous to those which result from an organic alteration of the same areas. Without doubt it is in part due to this pathogenic conception that hysteria has been regarded as capable of bringing about paralyses identical clinically with those due to organic lesions of the brain—a gross error, if what I have explained to you is exactly as I believe it to be.

The notion to be entertained of the mechanism of hysteric paralysis is quite different.

This phenomenon, as well as other manifestations of hysteria, cannot be regarded as the result of a functional trouble limited to an anatomic territory, but rather it must be considered as a disturbance of what the psychologists call the ego.

Of what does this disturbance consist, or, what amounts to the same thing, what state of mind induces in an individual hysteric paralysis? Two interpretations seem to me tenable. We may suppose that the patient has lost the power to evoke motor images corresponding to the movement; that he is unable to carry out or that his will is incapable of executing, certain movements. It is possible that each of these interpretations, one of which does not exclude the other, may be applicable to a given group of phenomena.

I should add to what I have said that hysteric paralysis may be reproduced in certain hypnotized subjects by suggestion, and the identity of these two kinds of paralysis seems to demonstrate perfectly that the paralysis which results from hysteria is due either to suggestion or auto-suggestion. I cannot develop further the study of the mechanism of hysteric paralysis, for it would necessitate a long discussion. What I have said is sufficient to make clear, and that is the object I had in view, that hysteric paralysis, since it is a central disturbance, is the result of an anomaly of the imagination or the will and can only be manifested in phenomena which are subject to the influence of the imagination, will and suggestion. Thus it is easy to understand that hysteric paralysis implicates neither muscular tonicity nor reflex movements, whether tendinous or cutaneous, anomalies of which constitute the most important characteristics of organic hemiplegia. These modes of muscular action are, in fact, not subject to the influence of the will or imagination. As I have already indicated, the will may apparently alter the reflexes, but in reality it cannot abolish or change them.

It is also evident that the contracture of organic hemiplegia, which depends upon a lesion of an anatomic system of fibers, presents a special form which the will cannot bring about, and which is never observed in hysteria; further, that hysteric contracture can be imitated with rigorous exactness by voluntary muscular action.

It is also easy to understand why the sign of the platysma is wanting in hysteric hemiplegia. It is well known that in the greater part of voluntary movements several muscles are called into action, and the will cannot exclude the action of one of these muscles. Energetic opening of the mouth, as well as sudden flexion of the head and neck, brings the platysma into action. But the sign of the platysma, occurring in organic hemiplegia, if the explanation I have given is correct, is due to the fact that in the movement in question, the contraction of the platysma is feeble or absent on the paralyzed side. This sign should be wanting in hysteric hemiplegia, and if it seemed to be present in such a case, it would depend probably upon simulation of the sign resulting from voluntary unilateral contraction of the platysma, associated with the movement of opening the mouth or of flexion of the neck.

If, in hysteric hemiplegia the disturbances of motility of the face are generally bilateral, this is due to the fact that in the majority of volun-

tary movements of the face the two sides functionate together, and they will bring about unilateral disturbance of the muscular action of the face only with difficulty.

I have told you that the phenomenon of *combined flexion of the thigh and trunk*, as seen in organic hemiplegia, does not belong to the symptomatology of hysteric hemiplegia. In the first place, I repeat that the complex action which consists of rising to a sitting posture is made up of two kinds of movements—the one conscious, that is, flexion of the trunk and pelvis on the thigh; the other subconscious, that is, extension of the thigh on the pelvis; and that the phenomenon in question depends upon the weakening of the extensors of the thigh. Auto-suggestion can scarcely have any influence upon unconscious or sub-conscious movement; this doubtless is why the sign of *combined flexion of the thigh and trunk* is absent in hysteric hemiplegia. Nevertheless, the two kinds of movement which make up the action we are considering may be executed voluntarily independently of each other, and we can see that hysteric persons might produce by imitation, at least approximately, the phenomenon in question. Though I have never seen it in hysteria, it still seems to me it might be found there.

Finally, it is quite natural that, contrary to what takes place in organic affections of the brain, hysteric paralysis should be systematic and subject to alternations of improvement and aggravation; in certain cases it may disappear completely for a time. We easily understand then that imagination, will, and suggestion disassociate the various modes of voluntary movement by abolishing certain systems of movement exclusively, and that a cause subject to many variations determines the same variability in the symptoms produced.

I have already touched upon the question of the mechanism of hysteric disturbances. As I have said, I cannot enlarge upon it; however, I would add that the preceding statements are applicable only to those hysteric manifestations which are, in fact, the commonest and which are prone to appear and disappear from moment to moment, in contrast with certain other anomalies allied to hysteria, like amyotrophy and fibro-tendonous retractions which never develop except secondarily to primitive anomalies, and in the genesis of which no influence is exercised by will, imagination, or suggestion.

I give in the form of a table the characters of the troubles of motility which distinguish organic hemiplegia from hysteric hemiplegia:

ORGANIC HEMIPLEGIA.

1. The paralysis is limited to one side of the body.

HYSTERIC HEMIPLEGIA.

1. The paralysis is not always limited to one side of the body; this remark is applicable especially to paralysis of the face, in which usually the disturbance is bilateral.

ORGANIC HEMIPLEGIA.

2. The paralysis is not systematic. If, for example, the unilateral movements of the face are much enfeebled, the lack of power is also present on the side of the hemiplegia during the execution of bilateral synergic movements.

3. The paralysis implicates conscious voluntary movements as well as unconscious and sub-conscious movements; thus we observe the two phenomena, one of which we call the *sign of the platysma*, and the other *combined flexion of the thigh and trunk*.

4. The tongue usually deviates slightly toward the paralyzed side.

5. There is, principally during the initial stage, muscular hypotonicity which may show in the face in the lowering of the commissure and the lowering of the eyebrows, etc., and in the arm in the phenomenon that I have called *exaggerated flexion of the forearm*.

6. The tendon and bone reflexes are often disturbed from the beginning; they may be either abolished, weak, or exaggerated. Later they are almost always exaggerated, and in many cases there is foot-clonus.

7. The cutaneous reflexes are usually disturbed.

The abdominal and cremasteric reflexes are ordinarily, especially in the early stage, weak or abolished.

The reflex movement of the toes following excitation of the sole of the foot ordinarily undergoes an inversion of form, the toes, instead of reflexing extend. This sign, which I have called the *toe-phenomenon*, may be found in all stages of hemiplegia.

8. The form of contracture is particular and cannot be reproduced by a voluntary contraction of the muscles.

9. The evolution is regular; contracture follows flaccidity; improvement is pro-

HYSTERIC HEMIPLEGIA.

2. The paralysis is sometimes systematic; in the face it is almost always so. For example, the unilateral movements of the face may be completely abolished, while the muscles on the side of the hemiplegia functionate normally during the execution of bilateral synergic movements.

3. Unconscious and sub-conscious voluntary movements are not disturbed; thus there is absence of the *sign of the platysma* as well as absence of *combined flexion of the thigh and trunk*.

4. The tongue sometimes deviates slightly toward the paralyzed side, but this deviation of the tongue may also be very pronounced or take place toward the sound side.

5. There is no muscular hypotonicity. When there is facial asymmetry, it is possible to determine that it is due not to muscular hypotonicity but to spasm. The sign of *exaggerated flexion of the forearm* is wanting.

6. The tendon and bone reflexes are not modified and foot-clonus does not occur.

7. The cutaneous reflexes are not altered.

The abdominal and cremasteric reflexes are ordinarily normal.

Reflex movement following excitation of the sole of the foot does not undergo inversion. The toe-phenomenon is wanting.

8. The form of contracture may be reproduced by voluntary contraction of the muscles.

9. The evolution is capricious; the paralysis may remain flaccid indefinitely,

ORGANIC HEMIPLEGIA.

gressive; the paralysis is not subject to alternation in improvement and aggravation.

HYSTERIC HEMIPLEGIA.

or it may be spasmodic from the beginning; spasmodic phenomena are associated sometimes, especially in the face, with paralytic phenomena. The symptoms may improve or be aggravated alternately from time to time, or be rapidly modified in their intensity and form, or present transitory remissions lasting only a few moments.

In the description I have given of organic hemiplegia, I have had in mind common hemiplegia, which depends upon a lesion of the cerebral cortex, of the centrum ovale, or of the internal capsule.

There are certain varieties of organic hemiplegia due to lesions occupying other parts of the pyramidal tracts, which, owing to their special localization, present peculiar clinical features in the disturbance of motility, which aid in distinguishing them from hysteric hemiplegia.

Crossed hemiplegia, known as the syndrome of Millard-Gubler, which depends upon a lesion of the inferior part of the pons, presents itself as paralysis of one side of the body on which the limbs exhibit all the characteristics belonging to common hemiplegia, and paralysis of the sixth and seventh cranial nerves on the opposite side. This facial paralysis presents all the characteristics of peripheral facial palsy with reaction of degeneration. Paralysis of the nerves, trunks, and reaction of degeneration being foreign to the symptoms of hysteria, their presence in crossed hemiplegia facilitates the diagnosis.

Paralysis of the third pair also aids in the exclusion of the hypothesis of hysteria in that variety of hemiplegia described by Weber in which the ordinary symptoms of hemiplegia are associated with paralysis of the motor oculi on the opposite side.

I have studied successively the various motor characteristics that serve to distinguish organic hemiplegia from hysteric hemiplegia, and I have sought to establish their value. Are there any of them that are pathognomonic? As I have already said I believe that there are, and I am especially sure with regard to the toe phenomenon.

But let us admit that there is not a single one that is absolutely decisive. Still, it seems to me certain that when several of them are found in the same individual, doubt is scarcely possible. Usually this is the case, no matter what the stage of hemiplegia.

Thus in conformity with what I sought to demonstrate, in the great majority of cases if our conclusion be founded upon the intrinsic characteristics, we are in a position to form a precise opinion and recognize whether hemiplegia depends upon hysteria or an organic affection of the central nervous system.

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CONSERVATION OF THE PARIETAL MOTOR NERVES IN ABDOMINAL SECTION.*

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Apparently so little attention is paid by the majority of operators to the trunks or distribution of the nerves supplying the abdominal region, that one might conclude that their preservation is a matter of no importance. Nevertheless, they do receive consideration from many men, and the general fact that section of a motor nerve is followed by atrophy of its muscle fibers; the particular observations of Assmy, made at the instigation of Czerney, showing that even the vertical incision in the rectus causes degeneration of the portion of the muscle mesial to the cut nerve fibers; and the assiduous care with which such a sound thinker as Kocher always and in all cases seeks to avoid the section of even small nerve trunks, lead me to present this paper for your consideration.

Before presenting any work, two questions should be answered in the affirmative: First, is there any reason for such work? Second, is there any reasonable possibility for its execution?

As to the first, while no anatomical change is an evil until it produce symptoms, still the interdependence of the parts of the whole body for their normal function is so intimate and far-reaching that one can hardly think of a large area of the abdominal parietes being deprived of contractile power without believing that there must in all cases be an extra effort on the part of the unparalyzed muscles to bring about compensation, and when this compensation is defective there will be a tax on the involuntary muscles, which, if too great, will result in exhaustion, imperfect function and neurosis.

So long as we continue to refer to all patients without tangible lesions as neurasthenics, we are not in a position to say that this or any other anatomical change, no matter how small, is without consequence; nor that, in some cases, a certain number of the disagreeable symptoms often seen following abdominal section are not from this cause.

The fact that these symptoms are often transitory, and that they occur after median section, does not disprove my point, for compensation, when established, will correct the symptoms, and this, at most, must be but one of a number of causes of post-operative neurasthenia. Granted that compensation is established, we can never foretell in what case further operative procedure, nerve lesions, or age, may weaken or render functionless other muscular areas, which will later destroy this compensation and add an extra burden to the declining functions of age.

The second question, is the procedure practical? is to be answered by saying that in some instances it is so difficult as to be put down as im-

* The anatomy basis of this paper is from the anatomical laboratory of the Washington University Medical School.

Read before the St. Louis Surgical Club, May 10, 1905.

practical; but, in most cases, by properly directing the incision, or by picking up nerve trunks where they are easily found, it is possible to avoid cutting them. In the following pages it is proposed to show just in what classic cuts the nerves are to be avoided, and how; and to give the lines upon which incisions may be made which will likely pass between the nerve trunks.

While every student of medicine can locate each intercostal nerve, few stop to think that the abdominal continuations are almost constant in their position.

Upon the origin and distribution of these nerves exact observations have been made by Bardeen¹, while Head² and others have given their general areas of distribution. As to the exact course of the trunks and



FIG. 1.—Showing incision from lower border of twelfth rib to linea semilunaris. The twelfth nerve having been isolated at this line, the incision is extended upwards and the flap raised. Posteriorly the twelfth nerve is shown in the upper lip of the wound and hypogastric in the lower lip, while the twelfth nerve is also shown where it has been picked up and drawn out at the linea semilunaris to allow the flap to be turned upward.

their landmarks, little more is to be found in text-books than that they continue forward in the same direction that they had in the chest wall, between the internal oblique and transversalis muscles. Cunningham's statement that they run parallel to a line drawn from the tenth costal cartilage to the umbilicus is as true as any general rule on the subject.

In order to tabulate reliable data, more exact than given in text-books, I wrote down my conclusions from observations made in the anatomical laboratory of the Washington University Medical School, and then

undertook to verify them by the examination of special dissections on ten subjects. The accompanying table gives the result.

CONCLUSIONS DRAWN FROM GENERAL OBSERVATIONS.	THEIR VERIFICATION ON TEN SUBJECTS.									
Body No.	1	2	3	4	5	6	7	8	9	10
The 7th nerve emerges into the sub-costal angle mesial of the 8th cartilage or turns up towards the chest from between the 7th and 8th, at or near a line drawn between the upper borders of the 7th costo-condral junctions.	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch above.	*	1 inch above.	*	*		$\frac{1}{2}$ inch above.	*	*
The 8th nerve emerges at a line drawn between the upper borders of 8th costo-condral junctions and turning upwards runs parallel and close to the sub-costal border before entering the rectus muscle.	*	*	*	*		*	*	*	*	*
The 9th nerve emerges at the intersection of the projected lower border of the 8th rib with the sub-costal border.	*	*	*	*	*	*	*	*	*	$\frac{1}{4}$ inch above.
The 10th nerve is found below the lowest part of the 10th costal cartilage at a distance of	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{4}$ inch below.
The 11th nerve is found below tip of the 11th rib at a distance of	$\frac{3}{4}$ inch below.	$\frac{1}{2}$ inch below.	$\frac{1}{2}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{2}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{2}$ inch below.	$\frac{1}{4}$ inch below.	$\frac{1}{2}$ inch below.	$\frac{1}{2}$ inch below.
The 12th nerve is found below the tip of 12th rib at a distance of	$\frac{3}{4}$ inch below.	1 inch below.	1 inch below.	$\frac{1}{4}$ inch below.	$\frac{3}{4}$ inch below.	1 inch below.	1 inch below.	$\frac{1}{2}$ inch below.	1 inch below.	$\frac{1}{2}$ inch below.
The 9th nerve crosses behind the outer border of the rectus before piercing aponeurosis of the Int. oblique at or above the level of the point it emerges from sub-costal border.	*	*	*	*	*	*	Slightly above.	*	Slightly above.	*
The 10th nerve crosses semi-lunar line by one, sometimes two, branches, usually before piercing aponeurosis of Int.oblique, about midway between level of umbilicus and lower border of 10th cartilage.	*	*	*	*	Slightly above.	*	*	Slightly above.	*	*
The 11th nerve crosses semi-lunar line and enters the sheath of rectus anywhere between the level of umbilicus and one-third the distance to the pubis in one trunk, or several branches.	$\frac{1}{2}$ the distance down.	Several branches range from $\frac{1}{2}$ to $\frac{1}{4}$ distance down.	$\frac{1}{4}$ the distance down.	$\frac{1}{4}$ the distance down.	Several branches $\frac{1}{4}$ to $\frac{1}{4}$ the distance down.	Several branches $\frac{1}{4}$ to $\frac{1}{4}$ the distance down.	$\frac{1}{4}$ the distance down.	At level of umbilicus.	$\frac{1}{4}$ the distance down.	$\frac{1}{4}$ the distance down.
The 12th nerve crosses semi-lunar line and enters sheath of rectus about one-half way between the umbilicus and pubis by one, sometimes two, branches.	*	*	*	*	*	*	*	*	*	Slightly above.
The trunk of the hypogastric nerve will be found first in the substance of the Int. oblique and then between that muscle and Ext. oblique about one finger's breadth above Poupart's ligament.	*	*		*		*	*	*		*

A line drawn from the 12th dorsal spine to the upper part of the tubercle on the outer lip of the crest of the ilium will closely correspond to the course of the hypogastric nerve after it emerges from cover of the quadratus lumborum. It here lies under the origin of the transversalis muscle. The inguinal nerve may be in a common trunk with the above, or a little below; both nerves may be slightly behind this line at its upper part.

A transverse cut through the parietes in the sub-costal angle in a line passing along the lowest point of the 8th cartilage would pass between the 8th and 9th nerve trunks and would be of the following lengths. This is a safe cut.

An angular or semi-lunar incision, extending from the sub-costal borders at the point of intersection of the projected lower borders of the 9th ribs or a little above, would, for most cases, pass between the trunks of the 9th and 10th nerves, and would be of the following lengths or greater. In some cases this might cut the 10th nerve.

A cut from the tip of 11th cartilage to the umbilicus would pass between the 10th and 11th nerves.

*	*	*	*	*	*	*	*	*	*
5 inches.	5 inches.	5½ inches.	5½ inches.	5 inches.	5 inches.	6½ inches.	5 inches.	5 inches.	5 inches.
7 inches.	7½ inches.	7½ inches.	8 inches.	7 inches.	8 inches.	9 inches.	8 inches.	8 inches.	8 inches.
*	*	*	*	*	*	*	*	*	*

* Corresponds with the statement in the first column. A blank space was left where no perfectly satisfactory observation could be made.

The following developmental facts bear directly on our subject. The primary ventral cutaneous branches of about the lower six thoracic nerves are caught between the successive tips of those myotomes which give rise to the rectus muscle, and in this way the segmental arrangement of the nerves of the abdomen is early insured.³

The transverse tendons of the rectus abdominis muscle in man correspond to the seventh, eighth, ninth, tenth and eleventh ribs.⁴ Of them the tenth, corresponding to the umbilicus, is very constant, while the eleventh is very often absent. It was so in all but one of the bodies here tabulated. The seventh and eighth nerves enter their segments of the rectus below, while the tenth and eleventh enter above the corresponding *liniæ transversæ*. With all, those nerves tend to have constant positions that go to segmented portions, while the nerves entering non-segmented areas lose their regular arrangement.⁵

It will be observed from the table that the position of the ninth and tenth nerves is rather constant, while that of the eleventh varies much, but the eleventh goes to a non-segmented part of the rectus. The twelfth, while it also has no transverse tendon to guide it, has a somewhat regular position, which is due, I think, to its taking a direct course to the pyramidalis muscle, which it supplies.

The practical points are, we can indicate approximately the point at which the nerves emerge from the ribs. The lower four thoracic nerves

can be isolated between this point and the *liniæ semilunaris* by splitting the fibers of the internal oblique, which split will be oblique to the course of the nerves in the lower part of the abdomen, and vertical in the upper part. We can outline the course of these nerves on the surface, and make parallel cuts between them. The nerves to the rectus, with the exception of a few small fibers, enter its posterior surface some distance from the outer border. Upon leaving the costal border, the seventh and eighth nerves turn upward out of the way. The ninth and tenth nerves pierce the internal oblique aponeurosis after having crossed behind the outer border of the rectus. The eleventh generally, and the twelfth always, pierces the internal oblique aponeurosis to enter

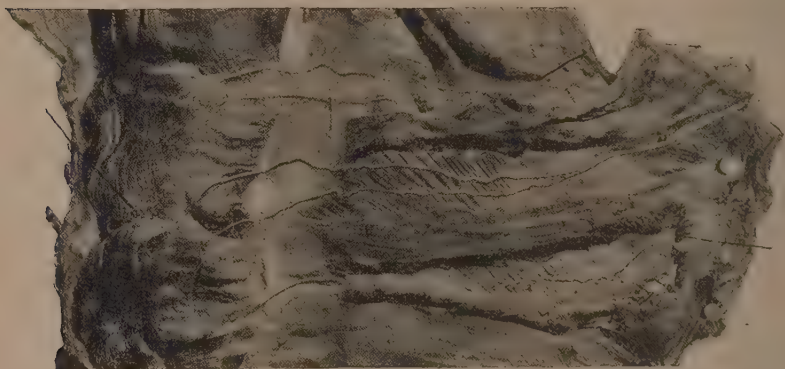


FIG. 2.—A dissection of the abdominal wall from the inner surface. The sheath of the rectus has been removed, as have parts of the transversalis muscle, to expose the tenth, eleventh and twelfth thoracic nerves in this part of their course lying on the deep surface of the internal oblique muscle. The wavy arrangement which allows of their being drawn out is still preserved in the twelfth. The nerves crossing the outer border of the rectus entering its posterior surface are also shown.

the sheath at the outer border of the rectus. Below the twelfth rib the nerve lies in rather loose connective tissue, and is easily found. The hypogastric and inguinal nerves lie out of the way of all but the more vertical lumbar incisions. Not least in importance is the fact that in the contracted abdomen there is sufficient nerve tissue to allow the nerves to be drawn aside after being isolated.

It is not correct to speak of these nerves as stretching. As shown in the twelfth nerve, in figure 2, in which the original arrangement is preserved, the redundant nerves are drawn up into little folds by the elastic connective tissue in which they are imbedded.

Of the various abdominal incisions, the least harmful is that made in the median line, either straight through or continued through the pos-

terior wall of the sheath after the rectus has been drawn outward. It is only when these incisions are inadequate that we have to consider the nerves. Quite as harmless, if we avoid the nerve trunks, for it cuts no muscles, is that made in the *liniæ semilunaris*. Some nerve fibers will

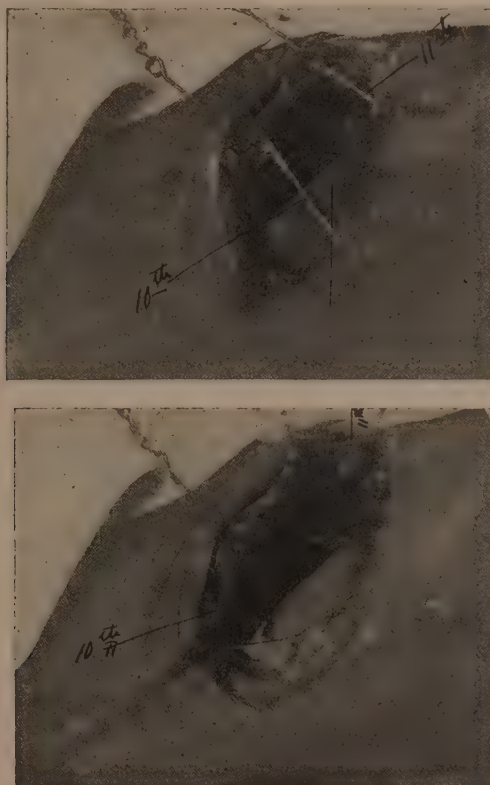


Fig. 3.—A and B, subcostal incision (made in this instance on the left side). A shows tenth and eleventh thoracic nerves crossing the wound, and B shows the nerves drawn aside.

be divided wherever we cut into muscle by any other method than proper splitting, but we can, in most cases, avoid the trunks.

In the sub-costal incision for approaching the gall bladder, which is four inches long parallel to and from one and one-half to two inches below the right costal border, the tenth and eleventh nerve trunks will be severed if the wall is cut straight through. The fibers of the internal oblique run parallel to the cut, so that it can be split, and in this way the nerves may be found and drawn aside. This might not be practical

in the very stout. Even here part of the supply of the external oblique will be cut off, as it comes from the lateral branches. Using our knowledge of the course of the nerve trunks, we can approach all obscure epigastric cases through an exploratory incision in the median line, and then, if we find that a complicated gall-stone operation requires more room, a cut can be made from the umbilicus towards the cartilage of the eleventh rib and a flap turned up containing the eighth, ninth and tenth nerves, and more room be gained than by any other incision. If it

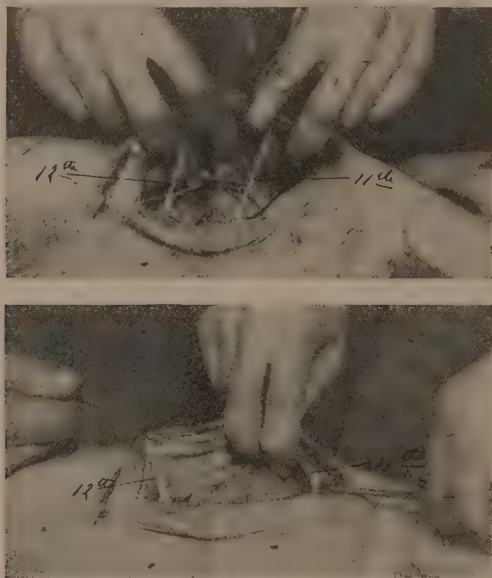


Fig. 4.—A and B, incision through linea semilunaris in lower part. A shows eleventh and twelfth thoracic nerves. B shows nerves drawn aside.

proves to be a gastric case demanding freer access, a supplementary transverse incision may be made between the eighth and ninth or ninth and tenth nerves, preferably the former, which will not cut nerve trunks. Then, if the wound has been kept clean and is well sutured, there need be no fear of hernia.

In the splitting operation, no nerves will be cut if we heed Kocher's admonition, which is to use hooks and tear the muscles apart. Practically the crooked thumbs are efficient.

Kocher's incision for appendicitis, which is three fingers' breadth above and parallel to Poupart's ligament, would most likely be below the twelfth nerve, provided the incision does not extend backwards beyond the anterior iliac spine. The cut for suppurating cases, made one fin-

ger's breadth above the ligament, would in most cases go above the hypogastric nerve.

Figure 1 shows an extensive lumbo-lateral abdominal incision that cuts no nerves. A flap of any size may be raised by cutting from the tip of the last rib to the linea alba between the eleventh and twelfth nerves and then extending the incision in the median line. All of these may be modified so as to divide the rectus transversely.

As we are dealing with a complicated organism, where deviations from the average are not necessarily deviations from the normal, we must always be prepared for a variation, no matter how constant the rule. In isolating nerves this is not of constant embarrassment, for it is only in the exceptional case that we will have to make a second trial. All incisions should be made to allow for some variation, and it is only in through-and-through cuts that the variation can cause trouble. In this connection it should be remembered that the eleventh and, next, the tenth nerves are the most liable to deviation, and that upward.

In all of this I do not wish to be understood as attempting anything radically new. Innumerable men have worked on the same lines; but I hope that the anatomical data herein given will be of some help to those who appreciate the value of conservation of the motor nerves.

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CLINICAL REPORT.

THE MANAGEMENT OF A CASE OF PROSTATIC HYPERTROPHY IN AN ENFEEBLED MAN OF ADVANCED OLD AGE.

BY H. McC. JOHNSON, M. D., of St. Louis.

Mr. D. S., aged 86, came under my care at Mullanphy Hospital, May 3, 1905. He was poorly nourished, markedly senile, and continuously asthmatic. Heart sounds were clear and pulse fairly strong. He was confined to the bed most of the time, being able to take only a few steps from the bed to a chair.

About the middle of March of the present year he noticed some burning upon urination, with decided frequency, the frequency existing night and day. At times his efforts at urination were ineffectual. These symptoms increased until about a month later when he had complete retention and became entirely dependent upon the catheter. Catheterization was both difficult and painful, making his condition quite unbearable.

Digital examination per rectum showed the prostate to be bilaterally enlarged. The quantity of the twenty-four-hour urine was fairly good and the specific gravity 1.011. There was a small amount of albumen, considerable pus, and some hyaline and granular casts. Dr. Hemplemann, to whom I referred the case for physical examination, considered the asthma to be dependent upon deficient cardiac action.

Here, then, was a very much enfeebled old man to whom catheter life was a burden; as catheterization required the services of one trained in that line, and because of his family circumstances, it became evident that he would have to spend the rest of his life in the hospital if nothing further could be done for him. Operative measures seemed contra-indicated on account of his extremely feeble general state, but he preferred to take the chances in hope of relief.

Following the lead of Smith and Telluride, I did an external perineal urethrotomy under local cocaine anæsthesia and inserted a catheter into the bladder through the opening for drainage. This caused the patient little disturbance and he improved somewhat afterwards, so that we were enabled to have him put in a chair and taken on the porch daily. However, we found difficulty in keeping the catheter in place during the night, because the patient in his sleep would catch hold of it and pull it out. The drainage was done simply as a temporary relief, with the idea that, if the patient improved sufficiently, a complete prostatectomy would be

done later. By June 1st his condition seemed to justify further intervention.

Accordingly, on that day he was given just sufficient chloroform to stupefy him, and a finger was introduced through the perineal wound. In a few minutes both lobes of the prostate were enucleated (there was no median lobe.) It was surprising how little reaction followed this operation. It seemed to have no deleterious affect on his general condition. Two days later the gauze and tube were removed; there was no leakage of urine from the bladder and the patient voided urine voluntarily, quite freely at first, but completely emptying his bladder. The operated wound granulated nicely and the bladder symptoms improved, allowing the patient to return home June 14th, thirteen days after the last operation. There remained a perineal fistula. His asthmatic condition was about the same and his general health seemed improved.

At the present writing the perineal fistula has healed. Frequency of urination is somewhat more than normal, twice at night, but is improving, and as the full benefit from prostatectomy is not reached for at least six months after the operation, I expect still further amelioration of the symptoms.

Preliminary drainage of the bladder through a perineal opening I regard as a decided advantage in cases of old men who are too feeble to stand immediate prostatectomy, and do not do well on the catheter. In fact, the danger of catheter life in prostatitis is no small consideration. A perineal section may be easily and quickly done under local anæsthesia and is followed by a minimum of shock. With a large catheter through the perineal opening in the bladder, drainage is good, and infection and inflammation may be reduced through irrigation, preferably with silver nitrate solution. It gives one time, too, to build up the patient's general condition, and should be employed in emergency cases, at least for temporary relief.

The perineal route is far superior to the supra-pubic route for temporary drainage, because it is efficient, there is less shock, less danger of urinary infiltration, less danger of sepsis. It may be done under local anæsthesia, which is safer than a general anæsthetic.

If the patient builds up and his general condition seems to justify it, a secondary operation may be done. It is not a difficult procedure to introduce the finger through the cut in the perineum and enucleate the obstructing lobes, nor does it add much to the gravity of the situation. In other words, we do half of the operation of prostatectomy at one sitting, subsequently getting the bladder and patient in condition, and the bladder tolerant of manipulation, later doing the second and last part of the operation.

By fitting a urinal to the perineal tube, as recently practised in a case by Dr. Burnett, often a patient may be quickly gotten out of bed and given the benefit of being up and about in the fresh air. If the patient's

condition is too serious to allow of further operative procedure—which is not the rule—we have, at least, relieved him of the pain and difficulty of catheterization, and allowed him to spend the last days of his life in comparative comfort.

It may be said that the Bottini operation is the one of choice for these cases, but the Bottini incision is made necessarily in an infected field without sufficient drainage, and is, to say the least, unsurgical. Moreover, statistics show that not a few serious mishaps follow its use.

On the other hand, the establishment of good drainage from the beginning by perineal section and its lessened dangers, seem to establish it as the operation of choice in these old, enfeebled cases.

EDITORIAL COMMENT.

ABOUT THE FIGHT AGAINST TUBERCULOSIS.

It would mean carrying owls to Athens to insist on the importance of Koch's discovery of the etiologic role of the tubercle bacillus; to-day, even in the lay public, its wide reaching influence is recognized and appreciated. Its consequences in so many directions have changed and built up to a stable structure our conceptions of disease and infection, that it has become the tendency of modern medicine to prevent, rather than to cure, the ravages of the tubercle bacillus, to eliminate the disease altogether, of which it is one of the most essential causative factors. Our ideas and intimate knowledge of the disease have greatly extended, and on this basis all over the world, an enthusiastic battle is waged to-day to master the white plague of the human race. The results of an immense and infinite amount of study are utilized for the means to fulfill the great task that we have undertaken. The individual and general increase of the natural resistance and the prevention of infection are the two great problems that stand in the foreground of all of the modern work. It is too early, as yet, to make conclusive inferences as to the results of this work, yet, as it seems, that the principles are correct, the success so far achieved definitely urges to continue the experiment. One thing, however, has become plain and clear, that is, that if the way is followed the success must be necessarily very slow in coming. As much as the enthusiasm for sanatoria may be justified in individual cases, the enthusiasm for the principle of these institutions is on the wane, as has been predicted by careful observers in the beginning of the movement. Although it would be utterly futile to let this negative conclusion detract from the importance and intrinsic necessity of the task in question that is worked on with so much of the highest self-denegation, we begin to see that the questions so far considered foremost must be attacked also in other ways. The establishment of sanatoria honors humanity, but, practically, they have but little to do with the prevention of the disease, that means with the main problem. All of the references to an educational effect of the stay in such a place, must be taken *cum grano salis*. We know each other and ourselves too well to put our trust in it. The general hygienic and sanitary improvement can naturally advance only in small and halting steps. A general educational raising to a level able to use the means in hand rationally, is, and will be for hundreds of years, a "Castle in Spain." Inroads into the ravages of the disease can be made, but it will, for a long time, remain what it is, our most fearful and victorious enemy. I do not wish to be understood as in the least criticising or belittling the work around and amongst us, but for years it has been a depressing feeling to see that means are left almost unutilized, that with one stroke would cause deep and killing wounds to the disease.

Our knowledge of its pathology is just now discussed on very different bases; it is not uniform yet, and in details, may in the future change greatly. Even the principal questions, the mode of infection and invasion, are answered in opposite directions. Fortunately these questions have only a secondary importance in the great fight that shall make us the preventors of the disease. For this we need only one support, the knowledge of what is the source of infection. And I believe it can to-day be said that the question is settled by Koch's doctrine that only the human tuberculous individual forms this source. Maybe that now and then the bovine bacillus plays a part; it is certainly the rarest exception, and our fight has only to deal with the human bacillus. This is to-day attempted in the well-known ways; to-day when we call a tuberculous patient, tuberculous, only when we have demonstrated that he harbors the bacilli and excretes them. In other words, to-day every tuberculous person is always a disseminator of the disease years before it is recognized. What, then, shall a sanitarium do to decrease the number of infections in people that have been around the patient for years, and that even after the disease is recognized, will be mostly the only ones exposed to the infection? They must be infected by the time of the diagnosis, and further contact means comparatively little to them.

We have learned that a tuberculous infection remains usually latent for many years; one can be inclined to believe that many cases in adults are acquired in childhood. We know, furthermore, that before an open tuberculosis is recognized, the individual usually suffers for a long while from indefinite symptoms; we know, also, that these symptoms are due to an intoxication by the tuberculous toxin. It is true the symptoms are often very indefinite, but the very fact that they cannot be classed with any of the named clinical entities, ought to stimulate close investigations. The great prevalence of tuberculosis ought to arouse a suspicion in every case, and this suspicion can be justified or refuted by definite means. The tuberculin test will, in the future, be the means of salvation. Where a professional man to-day hesitates to make the diagnosis of tuberculosis till the time when tubercle bacilli are found, valuable time is lost. It is a well-established truth that early closed stages of tuberculous infection yield in the majority of cases to proper management. These patients cannot infect others; if they are cured the source of infection vanishes. A change in the teaching on the diagnosis of tuberculosis must be made, not only on the basis of its practical importance, but also on the basis of our pathologic knowledge. The future physician must be able not to wait for the expectoration of the bacilli, but he must send his patient to a sanitarium before they appear. Then, and only then, sanitarium will be a benefit to the human race. The victory in the fight against tuberculosis does not lie, and will not lie, in the reporting of cases, in disinfection, in isolation, etc., but in the ability and the courage of the medical men to call a case one of tuberculosis, that to-day we will carry through years with the diagnosis of malaria, neuralgia, neurasthenia, dyspepsia and what not. The two problems of cure and prevention will be solved this way.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

Micrococcus Meningitidis Cerebrospinalis as a Cause of Endocarditis, and Their Presence in the Nasal Cavities of Healthy and Sick Individuals.—WEICHELBAUM and GHAN (*Wiener Klinische Wochenschrift*, No. 24, 1905), in a thorough review of the literature find that there have been very few cases in which the micrococcus meningitidis have been found in other organs than the brain and spinal cord. Strictly speaking, outside of the brain and cord they have been found in the nasal secretions only. The authors report here a case of acute endocarditis in a child nine weeks old with meningitis.

The micrococcus meningitidis were the only organisms present in the heart and were undoubtedly the cause of the disturbance. Out of nineteen cases of meningitis in which rhinitis was a complication, organisms were found in eighteen answering in every way the description of the micrococcus meningitidis. The nasal secretions of those who had been together with meningitis cases also contained the organisms. The probabilities are that the disease is transmitted through the nasal secretions.

A Case of Bronchial Colic Resulting from Broncholithiasis.—MUSZCAT (*Buliner Klinische Wochenschrift*, No. 25, 1905) presents the history of a case, characterized by acute pulmonary symptoms, which disappeared upon the expulsion of a calcareous concretion about the size of a pea. The onset of the trouble was acute; there was fever, cough, and bloody expectoration. The symptoms simulated those of tuberculosis, but disappeared promptly upon the expulsion of the calculus. The patient complained of localized "stitches in the side," which the author attributes to the direct irritation of the mucous membrane by the calculus. He reviews in full in this article the factors which may lead to the formation of such calculi.

The Favorable Time for the Appendicitis Operation.—ARUSPERGER (*Deutsche Medicinische Wochenschrift*, No. 23, 1905) recommends operation in acute cases only when there are unfavorable symptoms present; otherwise he awaits the interval, and recommends operation only when a number of typical attacks have occurred, or when the first one has left behind objective or subjective symptoms.

Pathogenesis of Pulmonary Tuberculosis.—MELEMSKI (*Berliner Klinische Wochenschrift*) presents in this article the results of careful investigations concerning the pathogenesis of tuberculosis, especially with reference to the role played by the lymph system. Guinea pigs were

inoculated with tuberculosis in different parts of the body, and were killed and examined at stated intervals. It was invariably found that the infection proceeded along the lymph system, and not the vascular system. The bronchial lymph nodes were found exceptions to the general rule in that they are a sort of end reservoir, not only for the lymph from the lungs, but from the entire upper portion of the body. Even from the glands of the lower portion of the body the infection found its way to the bronchial lymph nodes. In other words, the bronchial nodes are a sort of heart into which the lymph vessels empty themselves; from these the infection enters the lungs and the circulation.

The Effect of Tobacco in Health and Disease.—(*The Practitioner*, July, 1905), (a) BRUNTON: On the Heart and Circulation.—In animals nicotine causes slowing of the heart with enormous rise of blood pressure. The author believes that there is no drug which will increase the blood pressure as this will. He reviews the physiological effects of the poison and calls attention to the fact that it should never be used in the form of enemata, as was formerly done for causing vascular and general relaxation. Nicotine alone is only taken into the body when tobacco is used by chewing or by snuffing. Fortunately the tobacco used for chewing and snuffing contains, as a rule, but very little nicotine, consequently symptoms of poisoning from either of these habits are rare. Pure nicotine never reaches the mouth in the process of smoking, but pyridine and picoline bases exist in the smoke, and these are of course more or less poisonous. More pyridine is produced in pipe smoking than in cigar, so that tobacco which in the form of a cigar would produce no disagreeable effects may cause giddiness and vomiting if smoked in a pipe. The smoking of cigarettes is more harmful than that of either pipe or cigar because of the fact that the smoke is inhaled into the lungs, and the pulmonary mucous membrane absorbs the poison very rapidly. Smoking in moderation does not seem to be injurious to adults, but is distinctly harmful to youths. Irregularity of the heart is very common in tobacco smokers, and especially in those who use common tobacco. The cardiac rhythm is decidedly disturbed and the pulsations are usually characterized by a pause followed by one or two heavy beats, then a succession of quick and small beats, and then a pause again.

(b) DALTON: On the Gastro-Intestinal Tract.—Smoking increases the salivary secretions, and as result of this, a considerable quantity of saliva is swallowed. There is probably little or no nicotine swallowed with the saliva, consequently gastritis rarely results from smoking. It is not known whether smoking affects the secretions of the gastric juice, bile or pancreatic juice; however, it is generally believed that tobacco diminishes the secretions through its action on the nerves. Cersoy maintains that tobacco paralyzes the vagus, and thus brings about motor insufficiency, and in this manner may produce gastrectasis. Mendlesohn found that 10.6 per cent. of smokers and 10 per cent. of non-smokers fell ill of affections of the digestive organs. Dr. Albut believes that smoking often produces hyperchlorhydria. The author, however, believes that this is due to the saliva that is swallowed and its stimulation of the hydrochloric acid production rather than to any poison that is swallowed. Cases of gastralgia have been described by careful observers who attrib-

uted them entirely to smoking. It is agreed that patients with diarrhea should not smoke, and in all intestinal affections of obscure origin, an inquiry into the habits of the patient as regards tobacco should be made. The popular idea that morning smoking enables men to have regular evacuations of the bowels, the sequence of events is probably the result of habit.

(c) TAYLOR: On the Nervous System.—The effect of tobacco may be summed up as follows: First, tremor, fine and rhythmical in character, inconstant, but if once established the tendency to go on and become more and more definite and persistent. It may be got rid of by leaving off tobacco. Second, giddiness is very common and is probably the result of disturbance of the vagus. Third, vasomotor effects; coldness of the extremities, even to the extent of becoming blue. There is often a pallor of the face and excessive sweating of the forehead. Fourth, sleeplessness is one of the most troublesome effects of tobacco smoking. The author terms it intra-nocturnal insomnia. The sufferer goes to bed and goes to sleep at once, but wakes up later in the night, and lies awake for a long period of time, dropping then into a troubled sleep and awaking tired and unrefreshed.

(d) SPENCER: On the Mouth and Tongue.—The influence of tobacco on the mucous membrane of the mouth and tongue appears clinically as, first, an excoriation; second, a superficial glossitis; third, a chronic glossitis; fourth, a warty or horny patch of heaped-up epidermis with markedly elongated papillæ. The author recommends that, having identified tobacco as the cause of oral irritation, it should be dropped at once.

(e) LACK: On the Upper Air Passages.—Tobacco may affect the upper air passages either directly by acting as an irritant upon the parts with which the smoke comes in contact or indirectly by causing constitutional disturbances. Such authorities as Mackenzie, Lenox, Browne, Morritz, Schmidt lay great stress upon smoking as a causative factor in throat trouble. The author, however, is inclined to believe that this is greatly exaggerated, and that moderate smoking does not cause organic disturbance of the throat. He states that many singers have told him that moderate smoking has never in any way interfered with their singing. He believes, too, that many sore throats are attributed to smoking when other causes are really at fault. He lays down the following propositions: First, cigarette smoking is the most pernicious; Russian and American cigarettes are least harmful; Egyptian and Turkish, most. Second, cigars are the least pernicious form of smoking so far as the throat is concerned, and pipes occupy an intermediate position. Third, other things being equal, the more excessive the smoking, the more the smoke is inhaled, and the younger the patient, the more likely are ill effects to be seen. Fourth, the ill effects of smoking are greatly exaggerated by indulgence in alcohol. Much of the mischief produced by the latter is often erroneously ascribed to tobacco.

(f) LYLE: On the Eyes.—Tobacco affects the eye in two distinct ways. First, dense smoke will cause a catarrhal conjunctivitis in those who suffer from irritable eyes, especially if they are exposed to it in a badly ventilated room. Second, nicotine, slowly and continuously absorbed in the alimentary canal, is liable to produce tobacco amblyopia

or amblyopia nicotinea. The author describes the conditions thus produced and the treatment for same in detail.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

Two Cases of Interscapulo-Thoracic Amputation.—BERGER (*Bullet. et Mem. de la Soc. de Chir. de Paris*, April 18, 1905).—The first of these cases had a tremendous round tumor springing from the upper extremity of the humerus, filling out the axilla and causing a radical paralysis by pressure. It proved to be a chondroma which had recurred after six less extensive operations. In spite of the anatomic involvement the author found an interscapulo-thoracic amputation very easy, as he states, though the case is too recent to say anything about the permanent result.

He describes a second somewhat similar case, in which there was a sarcoma originating from the upper epiphyseal line of the humerus, the patient being a young girl. Here there was no shock from operation; the patient was up and out of the hospital on the tenth day, but returned very early with the characteristic neuralgic pains in the chest wall, and soon died of pleural and pulmonary metastases.

The author states that the operation is extremely easy provided the surgeon simply divides the clavicle high up, and ligates the important blood vessels first of all. The procedure would require but a few moments for its execution were it not for the fact that the number of ligatures and sutures, which must necessarily be introduced, consume a great deal of time. (One regrets to notice no reference to nerve blocking in this operation as it has been so successfully carried out by Crile, Cushing and others.)

Intratracheal Struma.—PFEIFFER (*Beit. zur Klin. Chir.*, Bd. 45, Hft. 3).—The author describes his case for the reason that those like it are extremely uncommon. The patient presented herself with symptoms of dyspnea, which became highly apparent on the slightest bodily exertion. Her lungs, etc., were normal, and the laryngoscope examination showed a tumor about the size of a cherry upon the posterior wall of the larynx. At the operation the larynx and trachea were split anteriorly in the median line, and, after the tumor had been removed, were sewn up with the exception of the defect at the lower angle, into which a tracheotomy tube was introduced. No attempt was made to cover up the defect resulting from the removal of the tumor. It was simply left to take care of itself after powdering with iodoform. It did not take long, however, until epithelium had spread over it in a satisfactory manner. The tumor proved to be a mass of thyroid tissue with colloid retention, although the gland itself showed no evidence of change. Only fourteen similar cases have been reported in the whole history of surgery. The explana-

tion for the appearance of this one is that a slender mass of thyroid tissue projected itself around the trachea between the rings, and into the tube beneath the mucous membrane.

Abdominal Perineal Resection of the Cancerous Rectum.—GOULLIQUOUD and FAYSSÉ (*Revue de Chir.*, No. 6, 1905).—The authors have done this operation eight times, which is certainly enough to give them authority to speak upon the subject. In the first case there was an invaginated tumor which presented exteriorly, in consequence of which the projecting mass was simply amputated. At the second operation the entire rectum was removed by the combined route, with the result that perfect cure was attained. Five years later there is no return of the disease. The first operation allowed the patient to regain health and strength after almost dying of pain and hemorrhage, but was attended by a recurrence, thus necessitating a second procedure.

The third patient was treated at three sittings. First, an artificial anus was made for obstruction, then a combined operation for removal of the rectum was carried out, and later the ovaries were removed for recurrence in them. The patient remained perfectly well when last seen, more than a year later.

The fourth patient was also exposed to three different operative procedures, while the fifth underwent one most exhausting procedure, namely, a total hysterectomy and removal of the rectum by the combined operation at one sitting. In spite of this she recovered completely.

The article contains nothing radically new on the subject, but shows us in a striking manner what extreme procedures we may be justified in adopting while attempting to combat this formidable pathological condition.

Persistent Reflux of Bile After Gastro-Enterostomy.—VON CACKOVIC (*Archiv. Klin. Chir.*, Bd. 76, Hft. 4).—In 160 of these operations the author had 66.6 per cent. free from trouble after the posterior method, but only 38.8 per cent. free after the anterior method, where no entero-enterostomy was done. In six cases he did this latter operation at a second sitting, and in four of them managed to meet the condition, while the other two patients remained unaffected. His experience leads him to think that a widely open pylorus may be responsible for this trouble, and that secondary anastomosis may thus be of no avail unless at the same time we close the pylorus. Hence, he counsels that the pylorus should be very carefully examined, especially at secondary operations, as regards its patency, in order that it may be closed if this be the cause of the trouble. If the pylorus is permanently closed by the pathological condition, the return of bile into the stomach can always be effectually made by an entero-anastomosis. One is surprised to note that the author makes no mention of the posterior gastro-enterostomy without a loop, which is now universally acknowledged to be the operation of choice.

The Treatment of Burns and Skin Grafting.—SNEVE (*Journal American Medical Association*, July 1, 1905).—This most excellent article is

the result of following the common-sense plan of treating burns and skin grafts without a dressing of any kind, simply allowing the air to get to the injured surfaces, and open all retention blebs, etc. The room in which such a patient is kept after extensive burns should remain at a temperature of about 90°. Morphine is used to control the pain; strychnine and saline are the aids used in combating the shock and depression. A surprisingly good per cent. of results has been accomplished in the large number of cases treated, and the future mortality of this form of injury will, no doubt, be influenced by the author's article. Baths are not the best treatment for this condition, for the reason that they interfere with the perspiration and dressings of whatever sort, simply retain the toxic materials and allow resorption.

Regarding Sarcoma of the Malar Bone and Orbit Treated by Radiotherapy.—WALTHER (*Bullet. et Mem. de la Soc. de Chir. de Paris*, April 18, 1905).—An enormous tumor had recurred after two operations, and then disappeared completely after the application of the x-ray, as unusual as this may seem. At the fundus of the orbit the last bit of resisting tissue had been noted, but this had now become a firm, healthy-looking scar. The disfigurement was remarkably slight, considering the extent of the lesion, and this case, which has the authenticity of having been presented before the Paris Surgical Society, will certainly do something toward strengthening our hopes of the x-ray treatment of malignant growths.

DIAGNOSIS.

IN CHARGE OF

A. E. TAUSSIG, M. D.

Contribution to the Study of Urinary and Biliary Concretions.—FANTINO (*Arch. f. klin. Chir.*, vol. 75, No. 2).—An examination of the behavior of various concretions, as well as of the pure salts constituting them, towards the x-rays, has given some interesting results. The oxalates, it seems, always throw an intense shadow, the urates on the other hand, a very faint one. The phosphates behave differently, according to the bases with which they are combined. Calcium phosphate throws a dark shadow, ammonium and magnesium phosphates a faint one. This explains the diverse results obtained by other authors in regard to the diagnosis of phosphatic calculi by means of the x-rays. Fantino considers the results of an x-ray examination for stone in the bladder as absolutely decisive, whereas in renal calculus, a negative result should be utilized with caution. In this last he is opposed to the views of Albers-Schönberg, Rumpel, and others.

His experiments with the photography of gall-stones by means of x-rays, have shown that most of them throw fainter shadows than pieces of muscle or of liver, but that stones, such as are found occasionally, that are rich in lime salts, throw a heavier shadow. It is such stones that,

under favorable circumstances, may be demonstrated by means of x-ray photography in the gall-bladder of the living patient.

The Diagnostic Significance of Hematemesis in Appendicitis.—K. SICK (*Deutsch. Arch. f. klin. Med.*, 1905, No. 3).—In cases of severe peritoneal infection, there sometimes occur gastric hemorrhage and hematemesis, even in the absence of any primary gastric disease. There does not need to be any general sepsis, although the little defects in the gastric mucosa that are responsible for the bleeding are usually due to the absorption of septic material. The writer reports a case that began with symptoms of appendicitis, but in which the bloody vomit led to a diagnosis of gastric ulcer. Under an expectant treatment, the appendix became perforated and a subphrenic abscess resulted, to which the patient succumbed. At the autopsy the stomach was carefully examined. The mucosa showed multiple hemorrhages *per diapedesin*, ordinary hemorrhagic erosions and fresh miliary inflammatory areas with necrosis of the mucosa. Evidently the septic toxins, circulating in the blood, produced tiny necrotic areas in the gastric mucosa. These were enlarged as a result of the digesting power of the gastric juice and led to the bleeding. Such a complication may make the differential diagnosis between perforating gastric ulcer and appendicitis very difficult. The writer of this abstract has himself seen three similar cases, in one of which the diagnosis of gastric cancer was wrongly made.

Subjective "Injection-fever" in Phthisis.—F. KOHLER and M. BEHR (*Deutsch. Arch. f. klin. Med.*, 1905, No. 4).—The writers have found that the injection of distilled water, or, indeed, merely the insertion of a hypodermic needle, may produce a fever in a consumptive patient closely resembling that of a typical tuberculin reaction. The subjective symptoms (weakness, depression, headache and the like) may also be present. Such a pseudo-reaction has been observed, not only in hysterical patients but in consumptives without any marked nervous abnormality. This would seem, then, to add one more to the sources of error inherent in the tuberculin test. It might be well either to precede the real tuberculin injection by one of distilled water to see whether the latter alone will cause a rise in temperature; or, at least, the patient should be left in ignorance of the results expected from the tuberculin injection.

A New Test for Acetone in the Urine.—CONSTANTIN COLLO (*Revista Farmaceutica*, 1905, No. 2; *Muench. med. Woch.*, 1905, No. 14).—This new test is based upon the property of acetone of being converted into acetic acid by means of oxidation. If the urine contains only small quantities of acetone, it is necessary to add a few drops of dilute sulphuric acid and to distill. In this case, the distillate is used for the test. If larger amounts of acetone are present the urine itself may be used. The procedure is as follows: To five c. c. of urine, or of the distillate, add two or three drops 5 per cent. ferrous sulphate solution, five drops dilute sulphuric acid, a few c. c. hydrogen peroxide. Warm gently. Then add fifteen to twenty drops concentrated sulphuric acid and heat again. The acetic acid formed by the oxidation of the acetone unites, in the presence

of sulphuric acid, with the alcohol to form ethyl-acetate (acetic ether), which may be recognized by its characteristic odor.

The test is said to be very delicate and will detect the presence of small quantities of acetone. It may be utilized, for quantitative determinations and experiments towards the elaboration of such a procedure are now under way.

The tests for acetone now in general use are reliable only if the distillate of the urine is used. If the above reaction is really trustworthy if applied to the urine itself, it represents a valuable addition to our urinological technique.

Albuminuria Resulting from Palpation of the Kidneys.—J. SCHREIBER (*Abstr. in Muench. med. Wochenschr.*, 1905, No. 15).—Of forty-two cases of nephropotosis, examined by the writer, palpation of the kidney produced albuminuria in thirty-nine. In one case albuminuria was absent; in the two others the result was indecisive. The amount of albumin varied from a faint trace to three-tenths per cent. Microscopically renal epithelium as well as red and white corpuscles were found, but never casts. The cause of this palpatory albuminuria may be the direct expression of blood or lymph from the capillaries or lymph spaces, or a pull on the larger renal vessels. Contractions of the abdominal muscles may make this palpation difficult or impossible, but pressure on no more than one pole of the kidney suffices to produce the albuminuria. The duration of the albuminuria varies from several minutes to several hours; if it lasts for a day or more, it is due to renal disease. As the writer has shown in seven cases, this palpatory albuminuria may be utilized to determine whether a suspicious tumor is the kidney or not. It thus forms a useful addition to our methods of abdominal diagnosis.

Diphtheria and Tetanus.—L. BOBONNEIX (*Rev. Mens. des Mal. de l'Enfance*, 1905, No. 1).—The writer shows that diphtheria may occasionally produce a symptom-complex identical with that of true tetanus. Whenever, therefore, the etiology of tetanus is obscure, a search for a possible diphtheritic infection should be made. In tetanus neonatorum especially, the secretions of the navel, the conjunctiva and the buccal cavity should be examined microscopically and culturally for the diphtheria bacillus. If it is found, the injection of diphtheria antitoxin, and it alone, may save the patient's life.

The Chemical Test for Pus in the Urine.—B. GOLDBERG (*Zentralbl. f. inn. Med.*, 1905, No. 20).—Donne's test for pus in the urine consists in the formation of a gelatinous mass upon the addition of potassium hydrate. A useful modification is the following: Liquor potassæ is added to the urine drop by drop, shaking vigorously after each addition. The viscous mass that results, imprisons the air-bubbles so that they remain suspended in the urine for some time. Two precautions must be taken. The reagent must be added cautiously, since an excess of it redissolves the pus, and the urine must be shaken immediately after adding the reagent since the viscosity gradually disappears. The writer has tested this reaction, which was first described by Mueller, in fifty cases. He finds that a positive reaction always proves the presence of pus and a

negative one its absence, if the urine be acid. In alkaline urine, however, the reaction may be negative even though pus be present. The test is useful chiefly when a microscope is not at hand.

Percussion of Pulmonary Cavities.—H. ERNI (*Zeitschr. f. Tuberc. u. Heilst.*, 1905, vol. 7, No. 2).—If the chest wall above a tuberculous cavity be vigorously percussed by means of a percussion-hammer, cough and expectoration follow each beat. The patient suffers no pain, but feels as though something were loosened in his chest. The writer uses this procedure not only for diagnostic but for therapeutic purposes. He believes that a cleansing of the cavity results, that is often useful.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

Treatment of Diabetes Mellitus.—NAUNYN (*Deutsch. med. Wochenschr.*, 1905, June 22, p. 977) in a clinical lecture presents in an admirable way the principles which govern the treatment of diabetes mellitus. The object of treatment should be to increase what "tolerance" for sugar a diabetic patient may have. A patient's "tolerance" for sugar is the quantity that he is able to assimilate and is represented by the difference between the quantity of carbohydrate ingested and the quantity of sugar excreted in the urine. Such a determination presupposes a careful weighing of the carbohydrates taken in the food. The degree of tolerance should be determined in every case; without it no clear conception of the case can be reached. The problem in treatment is not only to find the quantity of carbohydrate which the patient can take in his food without causing sugar to appear in the urine, but by avoiding an overtaxing of his power of carbohydrate assimilation to gradually increase this until he can assimilate a quantity of carbohydrate which will approach as nearly as possible the normal required by the body.

The diet, for the details of which the reader is referred to the article itself, should contain a sufficient caloric value (2,500 calories for an individual weighing 130 to 140 pounds), but under no circumstances should be excessive, as too generous a diet is fully as deleterious as undue quantities of carbohydrate. The carbohydrates should then be reduced from day to day until no sugar appears in the urine, the caloric value thus lost being replaced by an equivalent in fats; *the proteids should not be increased* beyond the quantity necessary for normal individuals of the same weight. In cases in which the tolerance is low, the attempt to make the urine sugar-free may be materially aided by a day of absolute abstinence from carbohydrates. When a satisfactory diet has been reached, it should be continued for at least two weeks. The carbohydrates may then be very gradually increased by adding 50 grams of milk daily, the twenty-four-hour urine being examined after each addition in order to determine the earliest appearance of sugar. If

500 grams of milk can be taken daily without causing a glycosuria, an attempt may be made to substitute bread in the proportion of 20 grams for 300 grams of milk. Further increase is made by addition of milk as before with substitution of bread when a sufficient additional quantity of milk is taken—until the limit of tolerance is reached. Such a course of treatment requires about two months. In this period the patient should gain in weight, lose the symptoms of the disease, and be improved both objectively and subjectively.

This procedure Naunyn regards as the actual treatment of the disease. The subsequent control of the diet in such a manner that the carbohydrate limit, as determined, is not overstepped he designates as "Pflege." The limit once determined, any form of carbohydrate, in equivalent quantities, agreeable to the patient and which will serve to retain or stimulate the appetite, may be substituted for milk and bread. The urine should be examined at first at intervals of a week, then once a month, and any quantity of sugar above 0.5 per cent. should lead to a reduction of carbohydrates, or even to a repetition of the active treatment. Complete abstinence from carbohydrates for twenty-four hours may cause the urine to remain free from sugar even after resumption of the previous quantity of carbohydrates, and Naunyn regards such a fast-day, taken at intervals of a week, especially useful in cases in which the general nutrition of the patient requires the daily quantity of carbohydrate to approach very nearly the patient's limit of tolerance.

The Circumstances and Treatment of Bright's Disease.—CROFTAN (*Jour. Med. Assoc.*, June 24, 1905, p. 1979), expresses the modern conception of Bright's disease as high arterial tension, with consequent cardio-vascular changes which result in nutritional disorders, particularly of those tissues of the body which are supplied by end arteries, namely, the retina, the brain and the kidneys. The cause of this high arterial tension is probably circulating toxins, which may arise either from faulty "degradation" of proteid food in the intestines, which floods the liver with more toxic material than it can dispose of, so that it lets some escape, or faulty metabolism in the tissues themselves give rise to similar toxins. The latter may be the result of the former in that a persistent overtaking of the liver cells may eventually cause an incomplete oxidation of intermediary products of metabolism (purin bases, etc.), which they ordinarily convert into innocuous substances.

Regarding Bright's disease, therefore, as a toxæmia, causal treatment may be directed, at least in one group of cases, toward digestive disturbances of any sort, and toward the stimulation of the liver cells to destroy poisons which reach them from the intestinal tract. The remedies which effect these ends are certain metallic salts, the bile acids and certain organic peroxides. These are employed to control bacterial decomposition in the intestines within limits and to stimulate the activity of the liver cells. Croftan takes as his index of excessive decomposition the presence of sulphuretted hydrogen in the fæces, and of the aromatic sulphates (with the indican reaction as their indicator), in the urine. As an indicator of sulphuretted hydrogen in the fæces, he uses bismuth subnitrate, which precipitates as the sulphide and slackens the fæces, and for this purpose should be given in daily doses of 20 grains.

For controlling bacterial decomposition Croftan has made much use of the sulphocarbolate of zinc given in $\frac{1}{2}$ grain doses with 1 grain of sodium of glycocholate at frequent intervals until the urine fails to give the indican reaction and the fæces resume their normal color in spite of the presence of bismuth. The proper dose of the antiseptic mixture should be the least quantity which will prevent the blackening of the fæces. In addition to medication of this sort, a careful diet should be selected with special regard to the proteid foods, the most rapidly assimilable being preferable.

The Treatment of Tetanus by Intraneural and Intraspinous Injections of Antitoxin.—ROGERS (*Jour. Am. Med. Assoc.*, 1905, July 1, p. 12), presents a careful consideration of the experimental work of Meyer and Ransom, which demonstrated that tetanus toxin reaches the spinal cord solely through the motor nerves which it enters through its nerve endings, and further notes the experimental proof that tetanus antitoxin never reaches the nerve cells of the spinal cord when injected subcutaneously or intravenously, and only very gradually when injected intravenously. The points at which Rogers contends the toxin should be attacked are, first, in the general circulation and in the tissues; second, in the motor nerves, and third, in the spinal cord itself.

In early cases in which bacilli have been demonstrated but which have made no symptoms, daily subcutaneous injection of antitoxin continued for at least two weeks, associated, of course, with proper local treatment, may suffice to prevent any further development. After symptoms have developed it is waste of precious time to inject antitoxin subcutaneously. It should then be given intravenously in generous doses in order to neutralize the toxin still in the circulation, thus disposing of further absorption of toxin by the nerve endings. For intravenous injection the median basilic vein may be used. The next step is the intraneural injection of antitoxin. The chief motor nerve trunks which supply the region in which the injection has occurred should be exposed as near the spinal cord as practicable, and each injected by a fine hypodermic needle with from 5 to 20 minims of antitoxin. This neutralizes the toxin contained in the nerve below the site of injection, and may leave a surplus to combat the toxin higher up in the nerve or in the spinal cord. The incisions made to expose the nerve trunks should be left open, so that from day to day additional injections may, if necessary, be made. In order to neutralize the toxin which has reached the cord before the respiratory centers become involved, lumbar puncture may be made, when it is necessary, however, to injure the cauda equina to provide a site of entrance for the antitoxin, as this is not absorbed in the smallest degree by the spinal cord when simply injected into the cerebrospinal fluid. From 10 to 20 c.c. of antitoxin should be then introduced into and about the injured nerves. When the respiratory center has already been involved, and respiration has become embarrassed, Rogers has, as a last resort and fully appreciating the danger of hemorrhage, "introduced a long hypodermic needle near the posterior median line posteriorly opposite the sixth or seventh cervical spine and passed through the spinal canal until the body of the vertebra is encountered." Through a needle so introduced 20 to 30 minims of antitoxin are in-

jected directly into the end. In spite of a priori objections, Rogers has had no unfavorable experiences, and has seen recovery from apparently hopeless intoxications.

The treatment of the point of infection should be taken up last in order to avoid possible neudlipt infection. Where in the extremities much laceration of tissue has occurred amputation should receive more consideration than has heretofore been granted it. For less extensive injury the most painstaking cleansing should be followed by an attempt at disinfecti, preferably by tincture of iodine 1.1000, or even 1.500. The toxin which is thrown out into the neighboring tissues should be neutralized by a number of small subcutanery injections of antitoxin into the region.

When made necessary by the persistence of symptoms, the whole series of injections, intravenous, intraneural, intraspinous, and subcutaneous should be repeated daily.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

About Physiologic Degeneration in *Actinosphaerium Eichhorni*, with Remarks on the Etiology of Tumors.—R. HERTWIG (Feststhrift f. E. Haeckel, Jena, Fischer, 1904.)—The cytologic study of *Actinosphaerium* carried on by Hertwig for many years, has resulted in the establishment of new ideas about the structure of protozoic cells that have not failed also to affect the conceptions entertained so far, about certain nuclear and cytoplasmic configurations of the metazoan cell. While for the protozoan body today the existence of two nuclear substances, one serving the nutritive, the other the propagative functions, is a generally accepted fact, doubts have begun to arise as to the assumed function of the metazoan cell nucleus. The chromidian apparatus in protozoa has been looked for in metazoa, and Goldschmidt has described in certain actively functioning tissue cells, analogous formations. In *actinosphaerium* Hertwig has demonstrated that the growth of the nucleus takes place at the expense of the protoplasm, and that for the intactness of life the functional growth of the nucleus must be compensated by resorptive processes. If by any cause this equilibrium is disturbed, the nucleus begins to grow, and leads to an enormous hypertrophy. Hertwig produced such a disturbance by overfeeding, and found that this hypertrophy led to degenerative processes, finally resulting in the total destruction of the nucleus. The modus of this nuclear destruction or dissolution varies greatly, and leads to phenomena absolutely identical with structures so far only found and described in different protozoic organisms as specific structures. On the other side they lead to formations of hyperplasia, hypertrophy and hyperchromatosis absolutely homologous to the changes observed in the cells of malignant new formations. Hertwig concludes that the cells of a carcinoma undergo in a similar way, a

physiologic degeneration on account of the constant excess of nutritive material at their command. Like the protozoa, tumor cells are able to utilize this continuous surplus, and thus differ from normal tissue cells, whose growth and nutrition is checked by the needs of the organism as a whole. The cells of a new formation, therefore, do not grow organotypically, but cytotypically; they are emancipated from the functional work of the whole. This return to the cytotypic growth, Hertwig considers as a result of a change of the character of the cell, caused by innate quality or other influences, or by both factors. As to external influences, overfeeding and continuous inflammatory stimulations certainly are important. Of the inflammatory stimuli we know that they act on tissue cells often in a way to decrease differentiation and to stimulate cytotypic growth. Hertwig considers the hypothesis of Cohnheim, of the embryonal "anlage" of tumors as untenable. He emphasizes that embryonal cells are cells with cytotypic growth, but at the same time cells that, with increasing proliferation, assume the tendency to organotypia. He maintains that they are endowed with the property of differentiation, while tumor cells in the course of their proliferation lose the slight degree of this capacity that they possess in the beginning. Hertwig excludes the possibility that embryonal cells should leave unutilized for years their chance of nutrition while they have the chance to grow cytotypically to tumor cells. As a proof for the correctness of this view, he cites the tumor metastases that are able to grow everywhere. In addition, the author declines to consider the parasitic theory. The work of Hertwig, that in addition to the demonstration of a double functional nature of the nuclear substances, in general, has shown that under certain conditions this difference can morphologically become apparent, and lead a determining role in the developmental cycle of an organism (like in many protozoa) is important, because the physiologic nuclear degeneration described by him, has for the first time made possible to attack the problem of cell inclusions, etc., by a comparison with processes well studied and occurring under normal conditions. This important consequence has already been recognized by several observers, (Ewing, Prowaczek), and it is not unlikely that cytologic study will soon class such inclusions, or some of them, under the head of chromidial substances. That the study of normal cells under certain conditions will give the clue to this explanation is made very possible by the above mentioned observations of Goldschmidt. Whether Hertwig's application of the phenomena observed by him to the tumor etiology will be found to be justifiable, is very doubtful in view of the daily increasing accumulation of material, speaking for the embryonal origin. Positively, we at least refer to the *late development* of many teratonta and embryomatous growths that absolutely contradict at least the generalization of Hertwig's view. With these and with Wilm's beautiful researches, today, at least, the balance of evidence, if evidence we can call it, is against Hertwig.

Remarks on the Staining of Spirochaete Pallida.—G. GIEMSA (*Deutsch. Med. Woch.*, 1905, No. 26).—This article was picked out for review from the rapidly accumulating literature on Schandinn's spirochaete because it settles at least one point of the question—that of a reliable and certain method of demonstrating the microbe by any one who wants to un-

dertake the task to search for it. Giemsa's concise directions reduce the difficulties to a question of time and patience. On account of the importance of the subject, the directions may be shortly given: 1. Hardening of the dry, thin film for fifteen or twenty minutes in ethyl-alcohol, blotting with filter paper. 2. Dilution of one drop of Giemsa's solution (Gruebler) in 1 cc. of distilled water. 3. Staining in this solution for ten or fifteen minutes. 4. Thorough washing in distilled water. 5. Blotting, drying at room temperature, balsam. The method is, of course, the classic azure-eosin method, long known and appreciated. The formula for the solution has been published, and is well known. It is advisable, however, to order it from Gruebler, as otherwise the same uncertainty is likely as that experienced in making Leishmann's solutions. The number of observations published since we last mentioned the subject in this journal is great. They are, all of them, confirmatory of Schaudinn's report. The spirochaete has been found not only in primary and secondary lesions, but also in glands, in the organs of cases of congenital syphilis; in one case it was reported that it was found in the blood. Metchnikoff and Roux have found it in primary and secondary affects of monkeys inoculated with virus from human lesions. It is even claimed that it is possible to demonstrate them in fixed and stained sections of tissue. There is absolutely no doubt that the spirochaeta pallida will be in the near future established as constantly present in syphilitic lesions in the primary and secondary stages of the disease. The question of etiology is for the present not to be considered from the point of view of exact scientific experimental methods. The cultivation of spirochaetes has so far been impossible; may be that the discovery of Novy of trypanosoma cultivation will bring fruit in the study of this protozoon. It is at the present too early to make positive statements, although one may secretly agree with Fraenkel of Halle, who unhesitatingly pronounces the etiologic relation of the spirochaete to syphilis. The fact that in spite of innumerable attempts to find specific microbes in syphilitic products, the spirochaete has never been found, explains itself by their minuteness in size and by their refractivity to the ordinary staining methods. There is evidence in the literature that it has been seen before, but this evidence is not conclusive, for the reason that other spirochaetae of saprophytic character occur in the same lesions, which, at the time those older observations were made, could not be differentiated from the sp. pallida. It will take a long time before evidence sufficient in weight will be collected to prove the etiologic role of the microbe. Perhaps it will always be only circumstantial evidence, not complying with the demands of the rigorous and definite rules pronounced by Koch. Of course, this is the restriction that the methods of scientific research must unwaveringly recognize as just. Still, we have found that conclusions per analogiam have often led to truth, as we take it. And this much must be said, that in recalling former experiences in related questions, the work so far done on the spirochaete found in syphilis, bids fair to justify such a conclusion also. It must not be forgotten that spirochaetae are no bacteria, but protozoa, with a very complicated cycle of development, that, for one of them, at least, has been worked out.

After these remarks were written, a publication by Kiolemenoglou and Cube (*Muench. Med. Woch.*, 1905, No. 27,) appeared, in which the au-

thors claim to have found the sp. pallida, besides in syphilitic lesions, also in the secretions of balanitis, in a gonorrhœic abscess of the Bartholinian gland, in pus of serofulodermaic abscesses, in the products of a disintegrating carcinoma and in acute condylomata. In all cases they found with Schaudinn's organism the spirochaete refringens, and believe that the former are only stages or degenerative forms of the latter. Whether this is true, or is to be explained by faulty methods, further control-investigations will have to show. In view of Schaudinn's authoritative knowledge on spirochaetæ, the latter result appears most probable.

Hoffman (*Berl. kl. Woch.*, 1905, No. 28,) himself, the collaborator of Schaudinn, reports just at the same time that he has found in ulcerating carcinomata, spirochaete closely resembling the pallida. He insists that this has no bearing on the etiologic role of the latter, and expresses the hope that soon the study of the development of the organism and its cultivation will furnish further means of differentiation.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

The Treatment of Menorrhagia and Hemoptysis by Inhalation of Amyl Nitrite.—H. COLMAN (*Scott. Med. Jl.*, May, 1905; rev. *Jl. of Ob.*, Brit. Emp., June, 1905).—In the *Lancet* of 1904 (Vol. II, p. 522), Hare advocated the use of amyl nitrite to check hemoptysis. He noticed in one of his patients that menstruation was also checked completely on many occasions when inhaling nitrite of amyl for angina pectoris.

Dr. Colman now reports a case of very severe menorrhagia in a woman of fifty-six, whose uterus has been examined for disease, with the result that only thickened endometrium was found. Curetting, large doses of ergot and rest failed to ensue any real benefit. The writer then directed the patient to go to bed when menstruation came on, and when it was excessive to inhale three minims of amyl nitrite. The loss was at once checked and stopped in twelve hours. Treatment has been discontinued for five months up to the present day, with the result that there is a marked improvement in the general health, the anemia has gone and the menstrual flow is diminishing.

Some Peculiarities of Appendicitis in the Female.—G. HEATON (*Brit. Med. Jourl.*, 1905, No. 15).—Appendicitis is observed in women only half as often as in men, probably on account of a better vascularisation of the female appendix. Pregnancy does not dispose to the development of an appendicitis, leads, however, quite frequently to an acute exacerbation of a chronic process. An acute attack always means a grave complication of pregnancy. Premature expulsion of the fetus is the rule if an abscess forms. Where the uterus constitutes a portion of the abscess

wall, rupture of the abscess and a general peritonitis are common accidents when the uterus contracts after the delivery. Of twenty-four patients in whom an appendicitis appeared during pregnancy, all those without abscess formation (six) recovered. Of the eighteen suppurative cases nine died. In 78 per cent. of the cases the pregnancy terminated prematurely. Chronic appendicitis is easily mistaken for an affection of tube or ovary, especially because a chronic appendicitis very often shows an aggravation of pain at the time of menstruation.

Decidua Cells in the Cervix in Cases of Normal Pregnancy.—M. BLUMBERG (*Arch. f. Gyn.*, Vol. 75).—Up to a few years ago it was the general belief that the faculty of forming a decidua is confined to the mucosa of the uterine body. Today the fact is established beyond doubt that the cervical mucosa may also undergo the typical decidual changes. Blumberg describes two cases of this kind. In one case characteristic decidual cells were found on a cervical polyp which was removed during pregnancy, in the other case a decidual transformation of the mucosa was seen on an eroded portion of the posterior lip of the cervix. From an analysis of all the reports in literature of similar cases the writer draws the conclusion that decidual changes in the cervix seem more common in cases of a low insertion of the placenta and could possibly prove of value in the early diagnosis of a placenta previa.

Can the Bossi Method be Recommended to the General Practitioner?—DUEHRSEN (*Arch. f. Gyn.*, Vol. 75).—The question is answered, as several times before, in the negative. Once more the writer takes up this much discussed problem and tries to prove that the use of the Bossi dilator is superfluous after the obliteration of the cervical canal, and is a decidedly dangerous procedure before its obliteration. The Bossi dilator can be applied without undue danger only by the specialist. Therefore, in the author's opinion, the vaginal Cesarin section remains the preferable procedure, while the general practitioner must be encouraged to use the colpeurynter.

Existence of a Nervous Reticulum in the Villi of the Placenta.—FOSSATI (*Annali di Ostet. e Gin.*; rev. *Am. Jour. of Obst.*, July, 1905).—By the staining method of Golgi, the writer has demonstrated in the placental villi what appears to be a fine, nervous reticulum, rich in branches, which occupies the central and peripheral portions of the villi, excluding only the superficial portion. It is formed of filaments of various diameters, with well-defined margins and having at certain portions swellings, from which begin secondary fibers. The method of arrangement and of ramification of the fibers along the vessels, the terminations similar to those in other organs, the swellings and the penetration of the epithelial layer by some of the fibers, show that this is a true nervous reticulum. The importance of this knowledge with regard to the origin of the epithelial layer, as well as in itself, is very great. The origin of this reticulum is not yet demonstrated.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

Ports of Entry of Tuberculosis in Childhood.—PIETTRE (*These de Paris*, 1905, *Rev. Mens. des Mal. de l'Enf.*) says that infection in all cases occurs either through the skin, the digestive tract or the respiratory tract.

Infection through the skin is excessively rare, especially in the child. Furthermore, infection of this kind is always limited to a purely local lesion, either a lupus or an anatomical tubercle.

Infection through the gastro-intestinal tract, and more particularly through tuberculous milk, certainly does occur; but with the universal boiling of milk before consumption, contagion through tuberculous milk plays a role that is practically negligible in the pathogenesis of infantile tuberculosis. (It will be remembered that in France the practice of *sterilizing* milk is almost universal.—ED.)

Tubercular infection occurs most often through the respiratory tract. That this is true is shown by observation, by experimentation and bacteriologic research, and by studies in pathological anatomy (finding of primary tracheo-bronchial adenopathy at autopsy). Tuberculosis is, above all else, an inhalation disease. Direct family contagion is, of course, an important factor in infantile tuberculosis. Clinical facts prove that the direct surroundings (parents, relatives, nurses, domestics and other persons about the house) form a milieu so favorable to the development of tuberculosis, that it is difficult to see how the children can escape.

Intestinal Tuberculosis in the Nursling.—DUDREUIL (*These de Paris*, 1905, *Rev. Mens. des Mal. de l'Enf.*) finds that intestinal tuberculosis, while not as frequent as inhalation tuberculosis, is still very common. There can be no doubt that in certain cases tubercle bacilli may penetrate through a healthy intestinal mucosa without injuring it. Consequently, it is not rare to find the mesenteric glands more or less tubercular without intestinal ulceration. Secondary intestinal tuberculosis from direct ingestion of tubercular sputum is more rare than in the adult, because the swallowing of the sputum is rarer. (This latter statement is directly at variance with the generally accepted view. Infants and young children do not expectorate, and *do*, as a rule, swallow the sputum.—ED.) It is, however, certain that ulcerative pulmonary tuberculosis is far more common in infancy than has previously been supposed.

Primary intestinal tuberculosis is contracted through the drinking of milk containing live tubercle bacilli; most often by the swallowing of tubercle bacilli-laden particles of dust, particularly through the use of unclean nipples and nursing bottles.

The bacillary infection is favored by pre-existing gastro-intestinal lesions, and the existence of a gastro-enteritis may thus be considered a predisposing cause. The normal avenues of absorption and the permea-

bility of the intestinal mucosa, permit the bacilli to penetrate the intestinal wall. The mesenteric glands are thus attacked, and the lesion may remain here, latent, for a greater or less period of time, before the infection develops manifestly. Heredity is, however, evidently a predisposing factor.

Diagnostic Tuberculin Reaction in Childhood.—SCHICK (*Jahrbuch f. Kinderheilk.*, June, 1905) has collected and analyzed 120 cases from the children's clinic in Graz. In many cases the reaction does not differ in childhood from the characteristics as seen in adult life. There are, however, two points worthy of special note in many cases in childhood: (1) The so-called protracted reaction, where the rise of temperature persists for several days, is much more common at this time of life. (2) In many cases there is an intense local reaction at the site of injection, usually the forearm (Stichreaction of Escherich). In the severest cases this local reaction consists in intense edematous swelling and erysipelatous redness of the entire arm, with great tenderness.

Both of these characteristics are dependent upon the degree and time of onset of the specific infection in the child. The reaction occurs the more promptly and the more intensely, the nearer the time of original infection the injection is made.

So far as the local reaction is concerned, it is to be remembered that skin tuberculides are much more common in childhood than in later life. According to the author, there is no case on record where, tuberculosis being absolutely excluded, there occurred a characteristic local reaction. In undoubted cases of tuberculosis this local reaction is at times the only sign of positive reaction. In the course of therapeutic immunization with tuberculin, it not infrequently happened that the local reaction persisted after the fever had altogether disappeared. There is, however, no definite relation between the intensity of the general reaction and the local reaction. Using the same quantity of tuberculin, it was found that the general reaction was the more violent and intense, the shorter the elapsed time from the period of original infection, or latest exacerbation.

It is, of course, to be noted that a positive reaction merely shows that the patient either is actively tuberculous, or that a tubercular focus exists. Whether or not the particular disease from which the patient is suffering at the time of injection is tubercular, can at times only be decided by careful consideration of all the manifestations. It can, of course, happen that the reactivity depends upon an old focus which is not to be brought into relation with the disease in question. This difficulty obtains with less frequency in infancy and early childhood than in later life, when tuberculosis is, of course, more common, particularly with reference to old, healed foci. This fact, however, lends added importance to the tuberculin test in childhood.

The old tuberculin was used. The initial dose should never exceed one milligram, and for very young children, even this is often too large a dose.

A detailed discussion of the cases is included in the article.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

Axillary Abduction in the Treatment of Congenital Dislocation of the Hip.—ROBERT WERNDORFF, Vienna (*Zeit. f. Orth. Chir.*, Bd. 13, Hft. 4.)—The writer uses this axillary abduction on cases that have been reduced at least once or twice and have relapsed in spite of the prolonged fixation in the right-angle position. The treatment consists of putting the thigh close to the trunk in the most extreme abduction, the knee coming under the axilla. The thigh and trunk are encased in one plaster of paris jacket. He has used this treatment in eight cases, four of which are still under treatment, and in the other four stability of the joint was established.

The Diagnosis and Treatment of Fracture of the Carpal Scaphoid and Dislocation of the Semilunar Bone (With Report of Thirty Cases.)—E. A. CODMAN, M. D., Boston, and H. M. CHASE, M. D., Boston.) *Annals of Surgery*, June, 1905.)—This article treats of the dislocation of the semilunar bone with or without fracture of the carpal scaphoid. It is Part II. of the paper. Part I. (*Annals of Surgery*, March, 1905,) took up the diagnosis and treatment of scaphoid fracture. In the series of twelve cases reported the condition was "anterior dislocation of the semilunar." The authors prefer to include all their cases under this head in order to avoid the confusion that exists in the nomenclature of the subject. In their opinion dislocation of the carpus nearly always means anterior dislocation of the semilunar. The latter lesion may or may not be complicated by a coincident anterior dislocation of the proximal fragment of the scaphoid. The reason why the cuneiform does not dislocate with the rest of the proximal row in these cases is probably due to the fact that the ligaments which keep the cuneiform in relation to the semilunar are much more easily torn than the more resilient structures which lie on its ulnar side. The twelve cases include the following varieties: Recent unreduced dislocation of the semilunar without fracture of the scaphoid; recent unreduced dislocation of the semilunar with fracture of the scaphoid; old unreduced dislocation of the semilunar without fracture of scaphoid; old unreduced dislocation of the semilunar with fracture of the scaphoid. These cases were treated in several ways, *i. e.* by rest and massage without reduction, by immediate reduction either manual or by open incision, by reduction several weeks after injury, by excision of the proximal portion of the scaphoid, or the semilunar and proximal portion of the scaphoid. In the considering of the mechanics the conclusion is that the dislocation results from hyperextension of the wrist, the reduction manual must take place, therefore, by hyperflexion. The symptoms are such as would lead a physician to make a diagnosis of Colles' fracture, or severe sprain of the wrist. A lateral view of the deformity suggests the "silver fork" of Colles' fracture. Inability to flex or extend the fingers

is a striking feature, and comparison of the hands shows that on the injured side much smaller and shorter, looking like the hand of a different person. The x-ray is the ultimate means of diagnosis, especially as to fracture of the scaphoid. The cases are seen almost always in males between the ages of youth and late maturity when activity makes the individual liable to meet injury. The cases reported are analyzed and a complete resume of the literature is given. The conclusions at which the authors arrive very well summarize the article.

Conclusions.—1. "Sprains" of the wrist which do not promptly recover are in many cases fracture or dislocation of the carpal bones.

2. The large majority of such carpal injuries are either simple fracture of the scaphoid or anterior dislocation of the semilunar bone.

3. These two injuries are frequently combined.

4. Simple fracture of the scaphoid gives a definite clinical picture, and may be recognized even without the x-ray, by (a) history of fall on the extended hand, (b) localized swelling in the radial half of the wrist joint, (c) acute tenderness in the anatomical snuff box when the hand is adducted, (d) limitation of extension by muscular spasm.

5. A broken scaphoid has little power of repair.

6. Anterior dislocation of the semilunar bone should be recognized clinically by (a) history of injury to extended or twisted wrist, (b) a silver-fork deformity, (c) a tumor under the flexor tendons of the wrist, just anterior to the lower end of the radius, (d) a shortened appearance of the palm as compared to the other hand, (e) stiffness of the partially flexed fingers, with pain on motion.

7. Recent dislocation may be reduced with good results even after the fifth week by hyperextension, followed by hyperflexion over the thumbs of an assistant held firmly in the flexure of the wrist on the semilunar.

8. Irreducible dislocations demand excision of the semilunar and the whole or a portion of the scaphoid if there is coincident fracture of the latter.

Rupture of the Tendon of the Biceps Flexor Cubiti.—W. W. KEEN, M. D., Philadelphia (*Annals of Surgery*, May, 1905).—A case is reported where the injury resulted from a violent muscular effort to catch a hand-ball; the individual was an athletic teacher. Examination of the injured arm revealed about 25 per cent. disability. On flexion against resistance the biceps belly terminated at its upper portion suddenly, and no tendon could be felt above that point; also the upper end of the belly felt flabby and soft. Operation was done, the biceps was laid bare, and the tendon of the long head was found lying tortuous like a snake. A fusiform swelling was found in the tendon about 2 cm. below the groove in the humeral head; here there was effusion and discoloration. The sheath was intact, making it clear that rupture had taken place within the sheath, and elongation had followed union. A tendon suture was done at the point of injury, and result has been perfect return of function. In the literature but two cases where operation was done have been reported previous to this paper, one for rupture of the belly, the other for rupture of the tendon. There are, however, seventy-two cases of rupture reported. The rupture may take place in the following locations: In the belly of the muscle, either the portion be-

longing to the long or the short head; or the belly after union of the two; at the transition point between the muscular belly and one of the upper tendons; at the transition point between the belly and the lower tendon; in the continuity of the long head tendon; at the point of insertion of this tendon to the rim of the glenoid cavity, or at least within the capsular ligament. The tables are unreliable, however, as so few cases have been verified by sight. Treatment of the cases has been in many instances none at all, or a bandage, massage and electricity. This latter the author condemns, as it would separate the portions of the muscle rather than approximate them. The few cases where operation was done show perfect recovery, whereas in the other cases lack of function has been very marked.

The Early Operative Treatment of Hip Joint Disease—Report of Two Cases.—THOMAS W. HUNTINGTON, M. D., San Francisco (*The American Journal of Medical Science*, July 1905).—If an attack can be instituted through a channel which will avoid interference with the joint capsule, afford relief of tension and admit of more or less complete removal of the infected tissue, such a policy would be based on sound surgical doctrine. The author proposes to do this by exposing the great trochanter and tunnelling up through the neck, even into the head, with a bone curette. He quotes Bradford, Sherman and others as pointing out the danger of such an operation, but, nevertheless, he has operated on two cases, with an arrest of symptoms and immediate improvement following drainage of the foci. He points out the value of an improved x-ray technique which would enable the surgeon to recognize and operate upon hip disease at its very incipency.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

A Note on the Condition of the Tendo Achilles Jerk in Diphtheria.—ROLLESTON (Brain Spring, 1905).—One hundred cases of diphtheria were examined for the purpose of this paper. It was found that the percentage of lost achilles jerk was not as large as that of the knee jerk. It was also found that whenever the achilles jerk was lost the knee-jerk was also lost. In twenty cases the reflex was totally absent. In forty-seven cases the achilles jerk was more or less affected. Some of the conclusions are as follows: The frequency and extent with which the achilles jerk is affected bear, like albuminuria and paralysis, a direct relation to the character of the initial faucial attack. They are completely abolished in all cases of diphtheritic paraplegia. Their absence may be the only evidence of the loss of power of the lower limbs. Like the knee-jerk they are likely to be lost at an early stage of the disease and to remain absent long after all other symptoms of the disease have

passed away. The achilles jerk, like the knee jerk, may appear on one side of the body before it does on the other.

On Four Fixed Vertebral Points and the Variations in the Subjacent Spinal Segments in Twenty-two Autopsies.—MUSKENS (*Rev. Neurology Psychiatry*, June, 1905).—This is a most valuable paper and deserves to find a wide publicity. The author attempts to find, by means of fixed points on the spinal column, the variation of the corresponding spinal segment. The fixed points selected are the same in every case and are the fourth cervical, first dorsal, seventh dorsal and twelfth dorsal. The body was laid horizontally face downward and long nails were fixed in the vertebrae corresponding to these points. The spinal cord underneath was then examined. A table is given with results obtained, as likewise a very clearly devised diagram. One very important point which this research brings out is the difference between the right and the left sides. From the operative point of view this study is of great importance for the reason that the results here obtained explain the frequency of the negative findings in opening the column for myelitis resulting from fracture or trauma. The result will depend often upon whether there is present a prefixed cord, that is a cord with relatively high position of the segments, or a post-fixed cord, that is one in which the segments are relatively low in position.

A Case of Toxic Degeneration of the Lower Neurons.—DONLEY (*Bos. Med. Surg. Jour.*, June 29, 1905).—The present paper consists of a report of a case and discussion of the pathological and clinical resemblances of this condition and acute poliomyelitis, peripheral neuritis, and Landry's paralysis. Young woman, age thirty, shortly after an acute febrile attack, developed weakness and atrophy in the interossei, thenar and hypothenar muscles of the hand, the extensors of the wrist and fingers and the small muscles of the feet, together with the anterior tibial groups. There were no sensory disturbances at all. The condition, after reaching its maximal intensity, constantly improved and continued to improve. In 1902 Stanley Barnes first described this group of cases which had hitherto been unrecognized, and gave to them the name of toxic degeneration of the lower neurons. These tentative conclusions are drawn from the experience of this case. First. Toxic degeneration of the lower neurons, acute anterior poliomyelitis, peripheral neuritis and Landry's paralysis are essentially degenerative conditions of the nervous elements. Second. The exciting cause of this degeneration is a toxæmia, which may be the result of bacteria, auto-toxins or poisons introduced from without. Third. The whole neuron, both the cell and fibers, suffers in every case, the clinical symptoms depending upon the intensity, the duration and the anatomical situation of the morbid process.

A Contribution to the Study of the Relation of General Paralysis and Tabes Dorsalis.—COTTON (*The American Jour. of Insanity*, June 4, 1905).—This study has for its purpose to examine more closely into the relation of both clinical and pathological, which exists between tabes and general paralysis. Twelve cases are given in some detail as illustrating the va-

rious types of tabo-paralysis. The conclusions are as follows: 1. That clinically tabes and general paralysis present many analogies in etiology, symptomatology and course. 2. That the occurrence in the same individual is more than a coincidence. 3. That in these cases of tabo-paralysis the symptoms presented are identical with the symptoms of general paralysis and tabes when seen apart, only differing in degree according to the extent of the anatomical lesion. 4. That the clinical symptoms of tabo-paralysis have the same anatomical basis as in the separate disease. 5. That anatomically the affection of the posterior columns of the cord, as seen in tabo-paralysis, does not differ from the picture presented in pure tabes. The same systems are affected and the segmental character of the process is the same, also that the process in the cortex is identical with that of general paralysis. 6. While the above facts show the intimate relation between general paralysis and tabes dorsalis, the unsettled status of their pathogenesis at present prevents their identity being absolutely established on an anatomical basis.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

Lavage of the Renal Pelves in the Treatment of Bright's Disease.—AYRES (*Medical News*, July 1, 1905.)—Not enough importance has been given to the probability that a large percentage of the cases of chronic nephritis, in whom no discoverable cause for the inflammation can be found, are really due to extension of inflammation from the renal pelvis.

Lavage of the renal pelves is only applicable in selected cases of nephritis, and will certainly cure a beginning nephritis that is due to extension of inflammation from the renal pelves. In sub-chronic and chronic parenchymatous nephritis the procedure will check the disease and markedly improve the general condition of these patients, in those cases that have not reached the stage known as cirrhotic kidney.

Cirrhotic kidneys are not influenced, or are made worse. One who is not properly trained in the technic of renal lavage cannot possibly improve the condition of the kidney and may do harm. It requires great delicacy in handling the instruments, and much patience and gentleness with the injections. Asepsis must be rigorous. If the injections are too strong, too copious, or are given with too much force they are liable to cause pain and renal colic, and will not benefit the patient. The straight cystoscope is preferred, causing less pain and damage. The medication must be selected to suit the case. A proper lavage of the renal pelvis consists of repeated injections of small quantities of a medicated solution through a catheter that has been passed well up the ureters towards the pelves, at a temperature of 105 to 110 F. Silver nitrate in a vehicle of boric acid, 1-8000, increasing slowly to 1-2000 renders good service. As the catheter is withdrawn the solution is deposited all along the ureter so as to treat that organ. The patient is

then requested to pass the water remaining in the bladder, a Janet wash of silver nitrate is given to complete the operation.

Some Surgical Notes on Tuberculosis of the Kidney.—KELLY (*British Med. Jour.*, June 17, 1905).—The following salient points are emphasized:

1. Is the organism found the smegma bacillus? How was the urine secured? Was it by voiding or by catheterization?

2. Given the tubercle bacillus in the mixed urines, from which side does it come? Determine by catheterization the appearance of the ureteral orifice and the thickened ureter.

3. Is the opposite side entirely free from disease? Bear in mind that a simple pyelitis is not infrequent in the opposite kidney.

4. Bear in mind that opposite ureter may show marked thickening (periureteritis), and yet the kidney be free from tuberculosis.

5. Note carefully to what extent the bladder is affected, as having an important bearing on the operation and the subsequent treatment.

6. Determine the urea coefficient of the opposite kidney. Is it able to support life?

7. Look carefully for disease elsewhere. Is there a tuberculosis of the genital organs? Is there any pulmonary or glandular tuberculosis?

8. In injecting guinea-pigs remember that tubercle bacilli may pass out of the bladder, if your patient has phthisis, without injury to the kidney.

9. Remember that the enlarged kidney found in the loin may be the one functionally enlarged—and, therefore, the only sound organ. Twice has such a kidney, doing all the work of the body, been taken out. There is a great risk of making this mistake.

The Value of the Use of a Shadowgraph Ureteric Bougie in the Precise Surgery of Renal Calculus.—FENWICK (*British Med. Jour.*, June 17, 1905).—The use of a metallic stylette in the ureter catheter with which the ureter is catheterized before radiography is done, when looking for a calculus shadow, has been of signal service to Fenwick in differentiating stones in the ureter from shadows that might be caused by other bodies. He exhibits skiagraphs of cases apparently showing calculi in the ureter. When exposed again with the catheter in the ureter, the shadows proved to be outside of the ureter, and were demonstrated at the time of the operation to be shadows of calcified lymph glands or arteries.

The Possibility of Avoiding Confusion by the Smegma Bacillus in the Diagnosis of Urinary and Genital Tuberculosis—An Experimental Study.—YOUNG and CHURCHMAN (*Amer. Jour. of Med. Sciences*, July, 1905).—From their experience in a number of cases the authors offer the following conclusions:

- (a) It may be impossible, in cases with organisms in the urine resembling the tubercle bacillus in morphology and stain, to eliminate the diagnosis of tuberculosis by any clinical feature.

- (b) It may be impossible to eliminate such a diagnosis by cystoscopic examination.

II. From a review of the literature.

(a) It is impossible to distinguish positively in every case between the tubercle and smegma bacillus by any method of staining now known. All those widely tried have proved unsatisfactory in some cases, and the few with clean records have been tested too little to warrant any conclusions about them. Moreover, the striking similarity in staining properties between certain members of the smegma group and the tubercle bacillus make it seem quite likely that it is irrational to suppose that any staining method which applies to one will not, in some instances, apply also to the other.

(b) The confusion in diagnosis cannot surely be avoided by catheterization.

(c) Animal inoculation is a tedious method and this is sufficient to condemn it if an equally sure method can be provided in its place. It may, of course, be necessary when no red-staining organisms can be found.

(d) Cultures are unsatisfactory, because of the uncertainty of the smegma bacillus to grow, and of the difficulties of growing either organism. The method is a slow one; it is liable to be unsuccessful because of contaminating overgrowth, and even when cultures have not failed we may be thrown back on staining or tedious inoculation methods to identify the organism.

III. From the examinations made.

(a) The smegma bacillus is a scant invader of the male urethra and seldom occurs in great quantity.

(b) Its quantity in the fossa navicularis varies, habits of cleanliness aside, with the anatomical relations of glans and foreskin.

(c) It is not found in the bladder nor in the posterior urethra.

(d) It may, by simple irrigation with a special nozzle capable of being introduced down the urethra, be removed from the urethra—probably so as not to be found subsequently in scrapings from the fossa, navicularis, *certainly* so as not to contaminate urine passed through it.

(e) The method of cleansing, by washing of the glans and irrigation of the urethra, gives a sure means of eliminating, in the male, the smegma bacillus as a confusing factor in the microscopic diagnosis of genital and urinary tuberculosis.

(f) Without urethral irrigation it may be impossible to say that organisms found in the urine and taking the carbol-fuchsin stain are not smegma bacilli.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

Treatment of Vertigo, Tinnitus and Deafness by Babinski's Method.—TRETOW, of Antwerp Hospital (*Annals of Otolaryngology, Rhinology and Laryngology*, March, 1905), reviews the following syllogism of Babinski:

(a) Voltaic vertigo has its origin in excitation of the labyrinth.

(b) Rachicentesis affects voltaic vertigo.

(c) Therefore rachicentesis affects the labyrinth.

The quantity of fluid withdrawn at first was four to six cubic centimeters; later it was increased to fifteen or twenty cubic centimeters. Tretrop punctured all patients in the lateral decubitus after anesthesia of the skin with the coryleur and did either a Quinke or Chipault puncture.

The functional results have been encouraging, the vertigo regularly influenced, generally completely disappearing, the tinnitus following a similar course. Tretrop obtained without any doubt unexpected results in three cases in a considerable improvement of the hearing. He thinks otology is about to be enriched with a new procedure which in certain definite cases may cause vertigo and tinnitus to disappear and sometimes even to improve deafness materially.

Psammoma of the Maxillary Sinus, with Report of a Case.—J. C. MUNRO (*Denver Medical Times*, June, 1905), quotes Ziegler's definition of psammoma as a sarcoma or fibro-sarcoma of the dura, inner meninges or pineal gland, which contains concretions of lime, in greater or less abundance. Some of these concretions are similar in structure to the normal brain sand, the basis of their formation being a concentric mass of cells which have undergone hyaline degeneration. They usually form round nodules and may be of multiple occurrence.

Munro's report is briefly: Delia C., age twenty, consulted Dr. Greenwood, December 1902. Seven years prior to this she had noticed that the left eye was a little more prominent than the right. Year by year this had become more marked. At no time pain or interference with vision. The lids of the eye were closed with difficulty. The fundus was normal and V = 20-20. The eye could not be pushed *directly* backward, but could be pushed a little upward and backward. Palpation revealed a smooth, rounded mass in the lower part of the orbit, beginning at the infra-orbital ridge and running upward and backward as far as the eye would allow the finger to go. Laterally the mass could be felt to extend out to the side walls of the orbit at the level of the canthi. The patient was subsequently sent to Dr. Munro who did a modified Kronlein operation. A slightly fluctuating tumor was found lying behind, below and to the outer side of the globe; on chiselling the outer edges of the wall, which proved to be soft bone of the thickness of blotting paper, a large cyst-like tumor was encountered, full of reddish granular material, feeling like a mixture of sand and putty. The antrum was opened and the same gritty material was found.

The diagnosis after macroscopic and microscopic examination of the mass approximating 15 c.c. in bulk was "psammoma of a peculiar type which should be classed as a sarcoma."

The results of operation were good in general, disappointing only in the failure to restore the globe to its normal position.

Remarks on Penetrating Wounds of the Neck.—HENRICKSEN (*Archiv fuer Laryngologie und Rhinologie*, Band 17, Heft 2), describes a case of attempted suicide on the part of an insane woman. The razor wound severed the trachea, but was at once sewed and an uneventful recovery took place. After two weeks the patient returned to the hospital with severe dyspnea, coming on suddenly after a dyspnea of a mild grade.

Stenosis of the larynx was present and tracheotomy was performed. Under the right vocal cord a scar was found extending obliquely to the left vocal cord and there was a yellowish grey formation lower down on the rear wall of the trachea. The patient continued to use the tube for two weeks when no improvement occurring, she came for the first time to the author. The laryngoscope showed a diaphragm-shaped scar 3 c.m. below the rima glottidis, which formation had a small opening in it behind. A second tracheotomy above the first was performed, the circular scar tissue removed and the subsequent cicatrization combatted by intubation with tubes of increasing size, beginning with one intubation a week, and increasing to three times weekly before the patient was discharged.

The length of time the tube was left in the larynx was also increased from five minutes to seventy-five. After five weeks the patient was discharged with very slight stenosis remaining, and free, easy breathing through the natural passage. The author observes that the large vessels of the neck are frequently not injured, as the suicide throws his head back, bringing the larynx prominently forward. Suicidal cuts are, as a rule, not so deep as homicidal ones. The former often have irregular edges and both show retraction of the skin at their edges from contraction of the platysma. Emphysema is a prominent symptom, especially if the wound is small and oblique. Bleeding is profuse even if the larger vessels are not injured. The recurrent laryngeal nerve is often injured, resulting frequently in a unilateral paralysis of the vocal cords. The passage of air through the wound shows that the air passage has been entered.

Spontaneous Bleeding as a Result of Erosion of the Transverse Sinus in Otitis Due to Scarlet Fever.—LEBRAM (*Zeitschrift fuer Ohrenheilkunde*, June, 1905).—The author records two cases. In the first a seven-year-old child, with rather severe general symptoms, developed on the fourth day symptoms of mastoid abscess on the right side, was operated on and the cells found full of pus. During the operation the sinus was laid bare in one small spot, but not broken into. Its wall appeared then, normal and healthy. Two days later the left side showed symptoms similar and was operated on, the cells being also found full of pus. Ten days after the first operation a sudden, profuse bleeding drenched the dressings on the right side. It was found to come from a small hole that had eroded into the sinus where it had been laid bare. Tamponing stopped it, but the bleeding returned whenever the tampon was removed, even after it had been left several days in situ. The bleeding finally failed to recur after the tampon had been left in for a period of eleven days, but in this period slight pyæmic symptoms developed and a secondary abscess appeared on the left thigh. After this was opened and drained the child recovered.

The second case, that of an eleven-year-old child, was a very severe one from the first, with high fever and clouded sensorium. On the fourth day mastoid abscess developed on the left side, and on the same day paralysis of the left facial nerve. Operation showed the cells full of pus, and the sinus wall was uncovered in one spot as before. Three days later a profuse hemorrhage from the wound occurred and was, as in the

previous case, from the erosion of the sinus wall at the uncovered spot. The tamponing stopped the bleeding temporarily, but the next day paralysis of the right facial, right arm and right leg developed, and the temperature remained high and the pulse very bad. The following day a marked difference in the pupils was noticed, and pronounced exophthalmos on both sides, and the child died of heart failure the day following this. The autopsy showed a circumscribed, purulent meningitis, thrombosis of the cavernous sinus and circumscribed encephalitis on the left side.

The writer contends that the infection causing the encephalitis and meningitis spread through the blood stream (sinus) and not from the ear directly. His conclusions are as follows:

(a) That the transverse sinus is the source of the bleeding following the operation for mastoid abscess, and that this possibility should be considered as one of the serious complications of scarlet fever where mastoid disease develops, and that the seat of operation should be carefully watched for its occurrence, and the patient kept in bed at least ten days after the operation.

(b) That it may occur in chronic or acute mastoid diseases.

(c) That it is much more common in the cases reported in literature in males than in females.

(d) That the critical period is the first fourteen days after operation.

(e) That the erosion of the sinus wall occurs before thrombosis.

(f) That there are two ways of stopping the bleeding: (1) by tamponing, which is the safer, but the risk of secondary pyæmia is greater; (2) central compression of the sinus with tying of the jugular vein, requiring another narcosis, which the patient is often too weak to stand, and, moreover, is often unsuccessful, though the danger of secondary pyæmia is lessened.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

The Employment of Oxygenated Hydrogen in Dermatology and Neurology.—W. SCHOLTZ (*Archiv. f. Derm. und Syph.*, t. 21, p. 371).—Scholtz has employed, with success, oxygenated water, 30 p. 100 of Merck, in the following affections: First, ulcerating and gangrenous processes in the skin; second, mercurial stomatitis in the form of gingivitis and pus from ulceration. In these cases he prescribes washing with a 2 or 3 per cent. solution, and each day mopping out the mouth with the pure solution; third, in suppurating buboes and soft chancres; fourth, in buccal leucoplakia; fifth, comedones, acne, freckles and the pigmentations of other nature, where he has seen often very good effect.

Inquiry into the Etiology of Infantile Eczema.—ARTHUR J. HALL, F. R. C. P. (*British Jl. of Derm.*, June, 1905).—This is a series of interesting articles that have been appearing in this journal for several numbers.

They are well worth careful study. Several very important questions in relation to this disease in infants are discussed, but they are far too numerous to quote in detail. We take them in the following order:

(a) Sex.—Of the sixty cases in his collection, 78.3 per cent. were males and 21.7 were females.

(b) The Age of the Mother.—Below twenty-five years, 29 per cent. ; above twenty-five years, 71 per cent.

(c) Number and Relative Ages of Other Children.—Defective child was firstborn in eight cases, secondborn in fourteen cases, thirdborn in fifteen cases, fourthborn in nine cases, fifthborn in five cases, sixthborn in seven cases, seventhborn in one case, *i. e.*, in over 50 per cent. of the cases the affected child was either second or thirdborn. The table shows that, as a rule, eczematous infants are not the children of very large families, nor is the average interval between the birth of the affected child and of the preceding one, of short duration. This is a most important point, as very frequent childbearing not only tends to exhaust the mother and thus possibly to affect her milk injuriously, but also increases her domestic duties and tends toward neglect in the care of the children. There is no evidence of either of these factors in these cases.

(d) Evidence of Skin Disease in Mothers.—There is a history of definite outbreak of eczema in 13 per cent. of the cases, presented slight evidence of seborrhea in 31.5 per cent. of the cases ; vague history of skin disease in 11 per cent., no past or present skin disease in 44.5 per cent.

(e) Evidence of Skin Disease Past or Present in Other Children.—Of course the cases of only one child may be eliminated, which leaves fifty cases to analyze in this class. Of these fifty cases there are 123 children in this analysis. There was a history of an outbreak of eczema in 2.43 per cent., there was a history of some vague skin disease in 7.29 per cent., no skin disease at all in 90.28 per cent.

(f) The Age of Child when Eruption First Appeared.—Seventy-five per cent. of the cases began between the ages of one and four months.

(g) Situation of the First Appearance of the Eruption.—Cheeks, forehead or temples in thirty-two cases ; scalp or behind the ears, twenty-five cases ; elsewhere, three cases. Therefore in 95 per cent. of the cases it appeared somewhere upon the face or head.

(h) Time of Year in Which the Eruption First Appeared.—It is a remarkable fact in this analysis that the smaller percentage of cases occurred in the months of July, August and September, which are those months in which all kinds of gastro-intestinal affections are particularly prevalent in infants. The largest number of cases occurring in any single month was in January, the next largest was in October, and none in June. From the trend of the author's argument, he seems to think cold is a greater factor than heat in these cases.

(i) The Nature of Food as a Factor in these Cases.—Breast fed only in thirty-three cases, breast and other things in eighteen cases, bottle fed entirely in eight cases.

(j) Relation of Vaccination in Infantile Eczema.—Cases in which vaccination preceded rash, fourteen ; cases in which rash preceded vaccination, forty-six.

(k) Evidence as to Dentition.—Interval between rash appearing and first dentition was less than two months in one case. Interval between rash appearing and first dentition was greater than two months in thirty-

seven cases. First dentition preceding rash, seven cases. Rash preceding first dentition, forty-nine cases. The author concludes from a thorough analysis of the cases in this regard, that we can once for all eliminate dentition as an etiological factor in infantile eczema, and feel quite clear that when the two co-exist it is a simple chance as regards their relationship to one another.

(7) Evidence of Gastro-Intestinal Disturbances.—Inquiry into this point was made in fifty-two cases. Of these cases, there was some malnutrition in eight, none whatever at any time in forty-four. There was evidence of rickets in eight, there was no evidence of rickets in twenty-eight, doubtful in fifteen. These cases showed quite a remarkable exemption from gastro-intestinal trouble, and the author here again refers to the fact that a very small per cent. of these cases began during the months when gastro-intestinal disturbances are most prevalent in infants. He does not place much stress upon the coincidence of constipation.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

Early Detachment of the Retina in Cases of Sarcoma of the Choroid.—J. H. PARSONS (*Ophth. Review*, June, 1905).—This paper is based on a histologic study of fifty cases of sarcoma of the choroid and ciliary body. The following conclusions were drawn from a special study of eight cases in the earlier stages: (1) That detachment of the retina occurs earlier in sarcoma of the choroid than would be gathered from the ordinary text-book description. (2) That, apart from the elevation at the site of the growth, where there is no true detachment in the early stages, the detachment manifests itself invariably as a shallow, simple detachment over the lower hemisphere. (3) That this detachment is frequently entirely isolated from the tumor, the intervening retina being in normal apposition to the choroid. (4) That this is invariably the case when the tumor is in the upper hemisphere; when the detachment is continuous with the elevation at the site of the tumor it is in the early stages, merely due to the accident of the position of the growth, *i. e.*, near or in the lower hemisphere. (5) That this isolated detachment is simply the first stage of the total detachment which supervenes.

These deductions do not apply to the earliest stages of sarcomata of the ciliary body, in which case the fluid can only pass into the vitreous and is excreted at the angle of the anterior chamber. In the case of the choroid the fluid accumulates beneath the retina, at once gravitating to the lowest part. The tumor, acting as an irritant, evokes an excessive secretion of a highly albuminous blood-plasma-like fluid from the choroid and it is the accumulation and imprisonment of large quantities of this fluid beneath the retina which gives rise to secondary glaucoma.

Two errors in diagnosis are possible. (1) The tumor may be recognized, but the shallow detachment in the lower hemisphere missed.

This error is obviously of little importance. (2) The inferior detachment may be regarded as idiopathic, the tumor being missed.

It is, therefore, of the greatest importance that in any case of apparent simple detachment of the retina, an examination of the interior of the eye through the fully dilated pupil should be made. This examination, in conjunction with a careful plotting of the visual and color fields, should give positive information for or against the presence of a tumor.

The Treatment of Inoperable Cases of Malignant Disease of the Orbit by the X-ray.—C. S. BULL (*Med. Record*, June 24, 1905).—Bull's experience with the x-ray in ten cases of malignant disease of the orbit and adnexa has convinced him that the claims of certain workers in this field are too optimistic. He believes that tumors confined to the orbit should first be subjected to radical operative removal, followed by a course of radiotherapy. He would limit the exclusive use of the ray to cases where total removal is impossible owing to involvement of the neighboring sinuses.

Carcinomata react more favorably than sarcomata. Often a shrinkage of the tumor will take place without a coincident improvement in the general condition. In almost every case the pain has been notably diminished or entirely abolished.

An Operation for Total Symblepharon of the Upper Lid. Preservation of the Globe.—MAZET (*Soc. Franc. d'Ophthalm.*, May, 1905).—In the case reported the entire upper lid was firmly adherent to the upper bulbar conjunctiva and to the greater part of the corneal surface. The operation adopted was a modification of Abadie's and proved entirely and permanently successful. After free division of adhesions, a cul-de-sac, of a size sufficient to admit the introduction of a glass shell, was formed above. Ollier-Thiersch skin grafts, taken from the arm, were carefully adjusted to the freshened surface and pushed well up into the new-formed cul-de-sac. The glass shell was then introduced and the lids united by three sutures.

To insure retaining the vitality of the flaps, Mazet advises a free irrigation with normal salt solution.

Optic Atrophy Following Intoxication by Extract of Male Fern.—MEYER (*Assn. Silesienne pour l'Avancement des Sciences*, February, 1905).—Following the ingestion of a medium dose of extract of male fern, the patient, a young man of twenty-five, lapsed into coma lasting thirty-six hours. Vision was then found to be entirely gone in the right eye and greatly diminished in the left. Ophthalmoscopically, optic atrophy, both. Treatment proved unavailing.

Male fern acts as a poison to muscular tissue. Meyer believes that there occurred an ischemia of the retina due to the narrowing of the arteries. According to Uhthoff's researches, the substance has a specific action on the nervous system.

On the Correct Use of the Giant Magnet.—O. HAAB (*Ophthalmoscope*, February, 1905).—In this paper Professor Haab outlines the essential points in the construction and use of the giant magnet.

The essentials of a large magnet for use in eye surgery are as follows: (1). It should be so constructed that the power may be concentrated at the tip. (2). It should be provided with a foot switch, so that the operator may turn the current on or off without the necessity of removing his hands from the patient's head or losing sight of the operative field. (3). It should be horizontally placed, so that the patient may readily withdraw his head at the first sensation of pain. (4). The tip should stand well away from the coil so that the eye may be kept in full view.

The patient is seated before the magnet with the arms resting on a wooden support. The surgeon, standing in front of or behind the patient, clasps the head (holding the lids apart with the thumbs), and brings the center of the cornea of the injured eye up to the tip. If the patient withdraws the head quickly, this is probably due to pain from pressure of the foreign body on the iris. In such a case the current is at once turned off. The positions of the head and eye are then so altered that a reapplication of the magnetic force will tend to draw the fragment obliquely through the pupillary space into the anterior chamber. When this has been accomplished an incision is made in the cornea, taking care not to allow the escape of aqueous. The fragment is then removed from the eye with the giant magnet tip applied to the lips of the opening, or by means of a magnetized spatula tip of the small magnet.

Great care must be taken to avoid getting the fragments entangled in the ciliary process. A fragment lodged 20 to 30 m.m. behind the surface of the cornea requires very strong magnetic power, which may be attained by removing the tip. If lodged in the retina it may be loosened by a series of jerks by alternately turning on and shutting off the current. Large fragments should be withdrawn slowly, which is accomplished either by diminishing the current or by placing the eye at a greater distance from the tip. If the fragment has entered through the sclera, and the wound of entrance is still fresh, it may be possible to extract through this wound. Even in such cases it is usually advisable to draw the fragment into the anterior chamber. If the eye has become infected an iodoform rod should be introduced into the anterior chamber. A fragment that has been long in the eye had best be left undisturbed.

SOCIETY PROCEEDINGS.

ST. LOUIS SURGICAL CLUB.

Meeting of May 10, 1905.

Dr. V. P. Blair read a paper entitled, "Conservation of the Parietal Motor Nerves in Abdominal Section," for which see page 602.

DISCUSSION.

Dr. W. C. G. Kirehner was of the opinion, that a practical way of avoiding injury to the nerves was by gauze dissection. Many used the knife too freely. If they would more often use gauze dissection, or the ends of blunt instruments, or the fingers themselves, many nerves could be saved. In hernia operations, especially, if the various layers were separated by gauze dissection, the nerves could be kept absolutely intact.

Dr. Blair said that he accepted as gospel truth Kocher's dicta, and followed the same to the limit of his skill. The basis of this paper was Kocher's teaching, that it was always better to cut across a muscle fiber than to cut a nerve, this with him being a motif stronger than skin cleavage. He quoted several passages from Kocher's "Operative Surgery," showing it was his belief that it was always proper to cut a muscle fiber in preference to a nerve. He said the paper was only intended to hit the high places, but he had evidently not emphasized several points as should have been done; for instance, as to cutting through the rectus. In cutting through the rectus longitudinally, at the junction of the outer third with the inner two-thirds, unless one saved the nerve trunks lying deep to the muscle, impairment of the outer part of the muscle would also result. In gall-bladder surgery one never could tell just how much room would be required, and the incision made two and a half inches below and parallel to the subcostal border, could be made with perfect ease, without the sacrifice of the nerves, and was preferable to the one just mentioned. He did not agree with Dr. Jonas exactly, and thought it very easy to locate the twelfth nerve and pull it out of the way. It had been mentioned that the numbness had eventually disappeared, after cutting the hypogastric nerve. After the destruction of sensory nerves, sensation does gradually recur, but function is not restored after the destruction of a motor nerve.

BOOK REVIEWS.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. For Students and Practitioners. By HOBART AMORY HARE, M. D., B. Sc. In one octavo volume of 1120 pages, with 129 engravings and 10 full-page plates in colors and monochrome. Cloth, \$5.00 net. Lea Brothers & Co., Philadelphia and New York, 1905.

Those who know Dr. Hare's invaluable book on "Diagnosis" will welcome the volume of "Practice" by the same fascinating writer. It covers the same field as the text-books of Osler, Musser and the like, and ranks with them.

CLINICAL DIAGNOSIS AND URINALYSIS. By JAMES RAE ARNEILL, A. B., M. D. The Medical Epitome Series. Edited by VICTOR COX PENDERSEN, A. M., M. D. Lea Bros. & Co., Philadelphia and New York.

This volume, very condensed and incomplete, is suitable neither as a student's text-book nor as a work of reference, but may find a useful place on the beginner's laboratory table.

CLINICAL AND MICROSCOPICAL DIAGNOSIS. By FRANCIS CARTER WOOD, M. D. 8vo, pp. xvii — 745, with 180 illustrations in the Text and 9 colored plates. New York and London: D. Appleton & Co. 1905.

It is difficult to discuss this wonderful book without excessive enthusiasm. It is by far the most complete and valuable work on the subject of medical laboratory work in the English language, and ranks with the best of the German text-books. The discussion of the technique of blood work, cryosecopy, serum reactions, gastric analysis, stool work, sputum and urine work and the like is as nearly exhaustive as is possible within the confines of a moderate sized volume. Whoever desires to take up one of the modern methods of medical laboratory examination will find adequate instruction here. The illustrations, especially the colored plates, are excellent and mostly original. It is a manual of equal value to the student, the practitioner and the laboratory specialist.

THE MEDICAL EXAMINATION FOR LIFE INSURANCE AND ITS ASSOCIATED CLINICAL METHODS, WITH CHAPTERS ON THE INSURANCE OF SUBSTANDARD LIVES AND ACCIDENT INSURANCE. By CHARLES LYMAN GREENE, M. D. Second edition. Octavo, with 466 pages and 99 illustrations. Philadelphia: P. Blakiston's Son & Co. 1905.

The work of the life insurance examiner is almost taking rank as a medical specialty. Examiners have need of special instruction in their work, since their attitude towards the applicant is so different from that of the physician toward his patient. Those interested in this field will find the information and instruction offered by this volume of value and interest.

THE URINE AND FECES. A Practical Manual on the Urine and Feces in Diagnosis. By OTTO HENSEL, Ph. G., M. D., and RICHARD WEIL, A. M., M. D., in collaboration with SMITH ELY JELLIFFE, M. D., Ph. D. In one octavo volume of 334 pages, illustrated with 116 en-

gravings and 10 colored plates. Cloth, \$2.75 net. Lea Brothers & Co., Publishers, New York and Philadelphia. 1905

The above is a compact summary of our present knowledge of urine and feces work. It is well arranged, brief, and provided with an adequate index. On the other hand, it suffers from the defects of its qualities. Its technical directions are not sufficiently detailed for the beginner, nor is the information it offers complete enough to make it useful as a work of reference. It is printed in large type, on heavy paper, with good margins. If the type had been a little smaller and the paper thinner, it might have served as a pocket manual, to which its contents most nearly correspond.

A TEXT-BOOK OF MEDICAL CHEMISTRY AND TOXICOLOGY. By JAMES W. HOLLAND, A. M., M. D. Fully illustrated. Philadelphia and London: W. B. Saunders & Co. 1905.

The remarkable developments of physical science in recent years have furnished the practical sciences with working principles of great value, and are being applied successfully to biologic problems in bacteriology, toxicology and pharmacodynamics. Cryosecopy, osmotic pressure, electrolytic dissociation, mass-action and radioactivity are becoming continually of greater importance to those interested in medical science, and to an increasing extent to the average practitioner also. The present work discusses the problems of inorganic, organic, physiologic and pathologic chemistry from the modern standpoint. While neither elementary enough for the poorly-equipped medical student, nor complete enough for the advanced laboratory worker, it occupies a position midway between the places filled by books catering to these two extremes, and will, therefore, be found of value as a book of reference to the busy practitioner of medicine or to the ambitious student.

STUDIES IN THE PSYCHOLOGY OF SEX—SEXUAL SELECTION IN MAN.

I. Touch. II. Smell. III. Hearing. IV. Vision. By HAVELock ELLIS. 6 $\frac{3}{4}$ x 8 $\frac{1}{2}$ inches. Pages xii-270. Extra cloth, \$2.00 net. Sold only by subscription to physicians, lawyers and scientists. F. A. Davis Company, Publishers, 1914-16 Cherry street, Philadelphia.

The doctrine of sexual selection was first set forth by Darwin in his "Descent of Man;" but, in Ellis' opinion, Darwin made the mistake of introducing the esthetic element as equivalent to the physiologic sensory stimuli through which sexual selection operates. The chief stimuli come, in the author's opinion, probably exclusively through the four senses of touch, smell, hearing, and above all, vision. Sexual selection is conditioned by sensory perceptions, and as such is fundamentally a psychologic process, which must be approached from the psychologic side. From this point of view the author analyzes the influence of these four senses upon selection in man. This fourth volume of the "Studies," like its predecessors, offers most interesting reading.

THERAPEUTISCHES TASCHENBUCH FUER DIE KINDERPRAXIS. Dr. B. SALGE. Fischer's medicin. Buchhandlung, Berlin. 1905. Pp. 158. Price, M. 2.60.

This little book is a compilation of formulæ in use at Prof. Heubner's clinic in Berlin, compiled by his well-known assistant, Dr. Salge. The whole field of pediatrics is covered in a clear, concise way, and the therapeutic indications for the various diseases distinctly set forth. A valuable addition is found in the fifty pages of carefully selected recipes for the preparation of all sorts of foods for children. The book will be a welcome addition to the list of shorter works devoted to the discussion of diseases of children.

GYNECOLOGY, MEDICAL AND SURGICAL. Outlines for Students and Practitioners. By HENRY J. GARRIGUES, M. D., New York. With 343 illustrations. Philadelphia: J. B. Lippincott Co. 1905.

The scope of this volume is defined by its author in the following words: "It is an outline of the whole system of gynecology, calculated to be a guide for beginners." Minor operations which the general practitioner is likely to undertake, are described in detail. In regard to others, the chief features are set forth. Those readers who seek information about anatomy, embryology, rare diseases, unusual operations, or about conditions connected with pregnancy and childbirth, are, by the author, referred to his well-known text-books of gynecology and obstetrics.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M. D., assisted by H. R. M. LANDIS, M. D. June 1, 1905. Lea Brothers & Co., Philadelphia and New York. \$6.00 per annum.

The present volume contains reviews of the literature of the past year on the following subjects: Hernia, by William B. Coley; Surgery of the Abdomen, by Edward Milton Foote; Gynecology, by John G. Clark; Diseases of the Blood, Dietetic and Metabolic Diseases, Diseases of the Spleen, Thyroid Gland and Lymphatic System, by Alfred Stengel; and Ophthalmology, by Edward Jackson. As heretofore, the reviews are given in the form of very readable monographs.